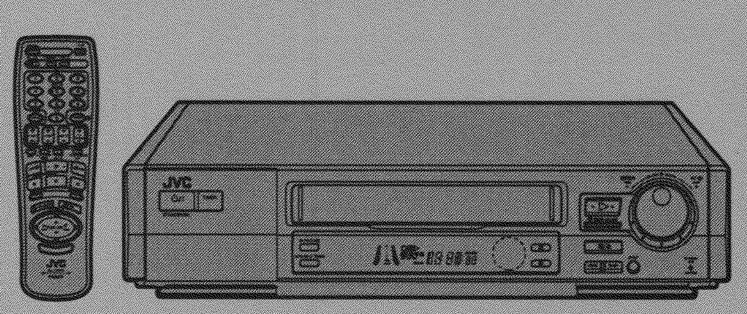
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-DD949EE



SHOWVIEW

TIME SCAN

Hi-Fi VHS PAL

Regarding service information other than these sections, refer to the HR-DD949E service manual (No. 82597). Also, be sure to note important safety precautions provided in the service manual.

SPECIFICATIONS

GENERAL

Power requirement
  Rating : AC 110 – 240 V∼, 50/60 Hz
  Operating : AC 90 – 260 V∼, 50/60 Hz
Power consumption : 24 W
Temperature
  Operating : 5°C to 40°C
  Storage : –20°C to 60°C
Operating position : Horizontal only
Dimensions (WxHxD) : 430 x 94 x 348 mm
  Weight : 4.5 kg
  Format : VHS standard
Maximum recording time
  (SP) : 240 min. with E-240 video cassette (PAL/MESECAM)
  (LP) : 480 min. with E-240 video cassette (PAL/MESECAM)

VIDEO/AUDIO

Signal system : PAL-type colour signal and CCIR monochrome signal,625 lines 50 fields
Recording system : DA-4 (Double Azimuth) head helical scan system
Signal-to-noise ratio : 45 dB
Horizontal resolution : 250 lines (PAL/MESECAM)
Frequency range : 70 Hz to 10,000 Hz (Normal audio)
  20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output : 21-pin SCART connectors:
  IN/OUT x 1, IN x 1
  RCA connectors:
  VIDEO IN x 1, AUDIO IN x 1,
  AUDIO OUT x 1

TUNER/TIMER

TV channel storage capacity : 99 positions (+AUX position "AU")
Tuning system : Frequency synthesized tuner
Channel coverage : VHF 47 – 100/104 – 300/ 302 – 470MHz
  UHF 470 – 862MHz
Aerial output : UHF channels (Adjustable E22 – E69)
Memory backup time : Approx. 18 hours.
Backup time becomes shorter as the unit's internal parts become old. When this occurs, please consult your nearby JVC dealer.

ACCESSORIES

Provided accessories : RF cable,
  Infrared remote control unit,
  "R6/UM-3" battery x 2

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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5. PARTS LIST

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The following table indicate main different points between models HR-DD949E and HR-DD949EE.

MODEL ITEM	HR-DD949E	HR-DD949EE
HEAD CLEANER	—	○
NICAM/A2	○	—
REPEAT PLAYBACK	—	○

Notes : ・Mark ○ is used. ・Mark — is not used.

The following tables indicate different parts number between models HR-DD949E and HR-DD949EE.

PACKING AND ACCESSORY ASSEMBLY <M1>

REF.NO.	MODEL ITEM	HR-DD949E	HR-DD949EE
101	PACKING CASE	LP30183-005A	LP30183-008A
105	RF CABLE	PEAC0300-02	PU59168-7
106	REMOTE CONTROLLER	PQ21953S	PQ21953U-7
106A	COVER(BATTERY)	PQ46614-2	PQ46614
⚠ 110	INST BOOK	LPT0002-027A(EN)	LPT0002-0K1A(EN)
⚠	INST BOOK	LPT0002-028A(FR)	LPT0002-0K2A(CZ,PO)
⚠	INST BOOK	LPT0002-030A(DU)	LPT0002-0L9A(RU,HU)
⚠	INST BOOK	LPT0002-082A(GE)	
⚠	INST BOOK	LPT0002-083A(IT)	
⚠	INST BOOK	LPT0002-084A(GR)	
113	WARRANTY CARD	BT-20135	—
114	POLY BAG	PQ33909	—

CABINET AND CHASSIS ASSEMBLY <M2>

REF.NO.	MODEL ITEM	HR-DD949E	HR-DD949EE
150	FRONT PANEL ASSEMBLY	LP10033-003A	LP10033-008A
187	CLEANER ASSY	—	PQ46436A-1
187A	CLEANER ROLLER	—	PQ46418-1-2
187B	CLEANER	—	PQ46419-1-2
187C	CLEANER ARM	—	PQ35159-1-1

Notes : ・Mark — is not used.

MECHANISM ASSEMBLY <M4>

REF.NO.	MODEL / ITEM	HR-DD949E	HR-DD949EE
—	MECHANISM ASSEMBLY	※ PMC0015A-M	←

Notes : ・Mark ← is sam as left. ・Mark ※ is missing for PMC0011A-E(or PMC0011A-M) of the HR-DD949E.

MAIN BOARD ASSEMBLY <03>

REF.NO.	MODEL / ITEM	HR-DD949E	HR-DD949EE
PW1	MAIN BOARD ASSEMBLY	PB11074B-01	PB11074W
IC701	QFP IC (MCU)	HD6433929TA91F	HD6433929TA90F
IC1001	IC	BA15218N	—
Q702	TRANSISTOR	UN521K	—
Q1009	TRANSISTOR	UN511E	—
Q1016	TRANSISTOR	—	DTC114EU
Q1431	TRANSISTOR	2SB1218A(QRS)	—
Q1432	TRANSISTOR	2SB1218A(QRS)	—
D401	DIODE	—	1N4148M
D957	ZENER DIODE	RD10ES-T1B3	—
R22	RESISTOR	—	NRSA02J-391X
R441	RESISTOR	—	NRSA02J-103X
R442	RESISTOR	—	NRSA02J-102X
R737	RESISTOR	—	NRSA02J-104X
R757	RESISTOR	QRD161J-472	—
R794	RESISTOR	QRSA08J-104YN	—
R795	RESISTOR	—	NRSA02J-104X
R898	RESISTOR	—	QRD161J-332
R973	RESISTOR	—	QRSA08J-562YN
R974	RESISTOR	—	QRSA08J-223YN
R977	OMF RESISTOR	QRG02DJ-182X	—
R1011	RESISTOR	—	QRE141J-562Y
R1030	RESISTOR	QRSA08J-0R0Y	—
R1431	RESISTOR	QRSA08J-821YN	—
R1432	RESISTOR	QRSA08J-682YN	—
R1433	RESISTOR	QRSA08J-562YN	—
R1434	RESISTOR	QRSA08J-102YN	—
R1435	RESISTOR	QRSA08J-223YN	—
R1436	RESISTOR	QRSA08J-392YN	—
R1437	RESISTOR	QRSA08J-821YN	—
C34	CAPACITOR	QCYA1EK-473	NCB21CK-473X
C55	NP E CAPACITOR	QEPF1EM-475	QEKJ1EM-475
C63	CAPACITOR	QCYA1HK-221	NDC21HJ-221X
C105	CAPACITOR	QCYA1EK-473	NCB21CK-473X
C719	EDL CAPACITOR	QEZ0244-229	QEZ0244-22A
C434	E CAPACITOR	—	QEKJ1CM-106
C441	E CAPACITOR	—	QEKJ0JM-476
C750	CAPACITOR	—	NDC21HJ-470X

Notes : ・Mark — is not used.

REF.NO.	MODEL ITEM	HR-DD949E	HR-DD949EE
C910	E CAPACITOR	PECA0738-686	PECA0738-826
C1432	CAPACITOR	QCYA1HK-103	—
C1434	E CAPACITOR	QEKJ1CM-226	—
C1435	E CAPACITOR	QEKJ1CM-226	—
C1436	CAPACITOR	QCTA1CH-100	—
⚠ UN1001	IF UNIT	QAU0028-001	QAU0030-001

TERMINAL BOARD ASSEMBLY <06>

REF.NO.	MODEL ITEM	HR-DD949E	HR-DD949EE
PW1	TERMINAL BOARD ASSEMBLY	PB11073A	PB11073L
IC201	IC	BH7634AS	—
IC202	IC	—	TC74HC4052AP
IC621	IC	BA3129F	—
IC1301	IC	LC74795-9601	LC74795-9689
Q202	TRANSISTOR	—	2SB1218A(QR)
Q205	TRANSISTOR	—	2SD1819A(QRS)
Q207	TRANSISTOR	2SB1218A(QR)	—
Q621	TRANSISTOR	UN521E	—
Q1353	TRANSISTOR	2SB1218A(QR)	—
Q1354	TRANSISTOR	2SD1819A(QRS)	—
Q1401	TRANSISTOR	—	2SB1218A(QR)
Q1402	TRANSISTOR	—	UN521E
Q1403	TRANSISTOR	2SB1218A(QR)	—
R203	RESISTOR	—	QRE123J-331X
R207	RESISTOR	QRSA08J-0R0Y	NRSA02J-101X
R210	RESISTOR	QRSA08J-511YN	—
R211	RESISTOR	QRSA08J-561YN	—
R212	RESISTOR	—	NRSA02J-223X
R213	RESISTOR	—	NRSA02J-223X
R214	RESISTOR	—	NRSA02J-222X
R215	RESISTOR	QRSA08J-750YN	NRSA02J-820X
R217	RESISTOR	QRSA08J-750YN	—
R219	RESISTOR	—	NRSA02J-102X
R220	RESISTOR	—	NRSA02J-101X
R224	RESISTOR	—	NRSA02J-473X
R225	RESISTOR	—	NRSA02J-473X
R227	RESISTOR	—	NRSA02J-101X
R616	RESISTOR	QRSA08J-221YN	—
R621	RESISTOR	QRSA08J-103YN	—
R622	RESISTOR	QRSA08J-333YN	—
R623	RESISTOR	QRSA08J-333YN	—
R624	RESISTOR	QRSA08J-103YN	—
R625	RESISTOR	QRSA08J-103YN	—
R626	RESISTOR	QRSA08J-473YN	—
R630	RESISTOR	QRSA08J-221YN	—
R1356	RESISTOR	QRSA08J-471YN	—

Notes : ・Mark — is not used.

REF.NO.	MODEL ITEM	HR-DD949E	HR-DD949EE
R1357	RESISTOR	QRSA08J-182YN	—
R1401	RESISTOR	—	NRSA02J-473X
R1402	RESISTOR	—	NRSA02J-102X
R1403	RESISTOR	—	QRE123J-331X
R1404	RESISTOR	QRSA08J-102YN	—
C202	E CAPACITOR	—	QETA1CM-337
C203	CAPACITOR	—	NCB21HK-103X
C204	E CAPACITOR	—	QEKJ1CM-106Z
C206	E CAPACITOR	QETA0JM-477	—
C207	CAPACITOR	QCYA1EK-223	—
C208	CAPACITOR	QCYA1EK-223	—
C209	CAPACITOR	QCYA1EK-223	—
C210	CAPACITOR	QCYA1EK-223	—
C211	CAPACITOR	QCYA1HK-103	—
C212	E CAPACITOR	QEKJ1CM-476	—
C217	E CAPACITOR	—	QEKJ1HM-106Z
C218	E CAPACITOR	—	QEKJ1HM-106Z
C219	CAPACITOR	—	NCB21HK-103X
C621	E CAPACITOR	QEKJ0JM-476	—
C622	E CAPACITOR	QEKJ0JM-476	—
C623	E CAPACITOR	QEKJ1CM-106	—
C624	E CAPACITOR	QEKJ1CM-106	—
C1306	CAPACITOR	—	NCB21CK-224X
C1319	CAPACITOR	QCYA1CK-224	—
C1356	CAPACITOR	QCTA1CH-101	—
C1409	CAPACITOR	QCYA1HK-102	—
C1420	CAPACITOR	QCYA1HK-102	—
L1351	COIL	QQL29BJ-150Z	—
L1410	COIL	PU59152-4R7J	—
L1414	COIL	PU59152-4R7J	—
TB1	TERMINAL BOARD ASSEMBLY	LP30165-001A	LP30165-011B

DEMOD BOARD ASSEMBLY <14>

REF.NO.	MODEL ITEM	HR-DD949E	HR-DD949EE
PW1	DEMOD BOARD ASSEMBLY	PB11032B	—

DISPLAY BOARD ASSEMBLY <28>

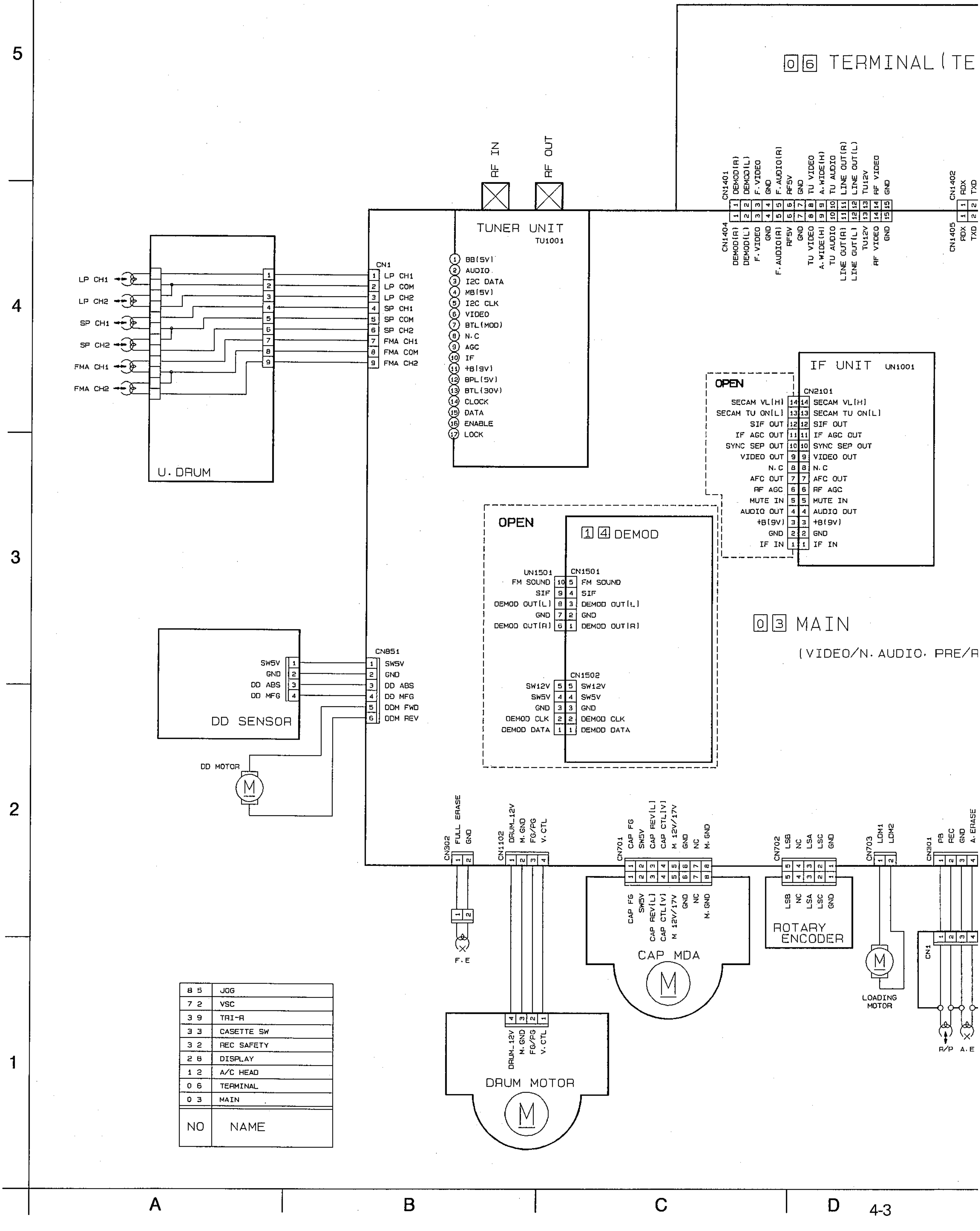
REF.NO.	MODEL ITEM	HR-DD949E	HR-DD949EE
PW1	DISPLAY BOARD ASSEMBLY	PB11055C1	PB11055E1
D1224	DIODE	1N4148M	—
D1225	DIODE	1N4148M	—
J1201	PIN JACK, VIDEO	PEMC1009-04	PEMC1126
J1202	PIN JACK(SW), AUDIO(L)	PEMC1010-03	PEMC0922
J1203	PIN JACK(SW), AUDIO(R)	PEMC1010-02	PEMC0922

Notes : ・Mark — is not used.

SECTIO

CHARTS AND

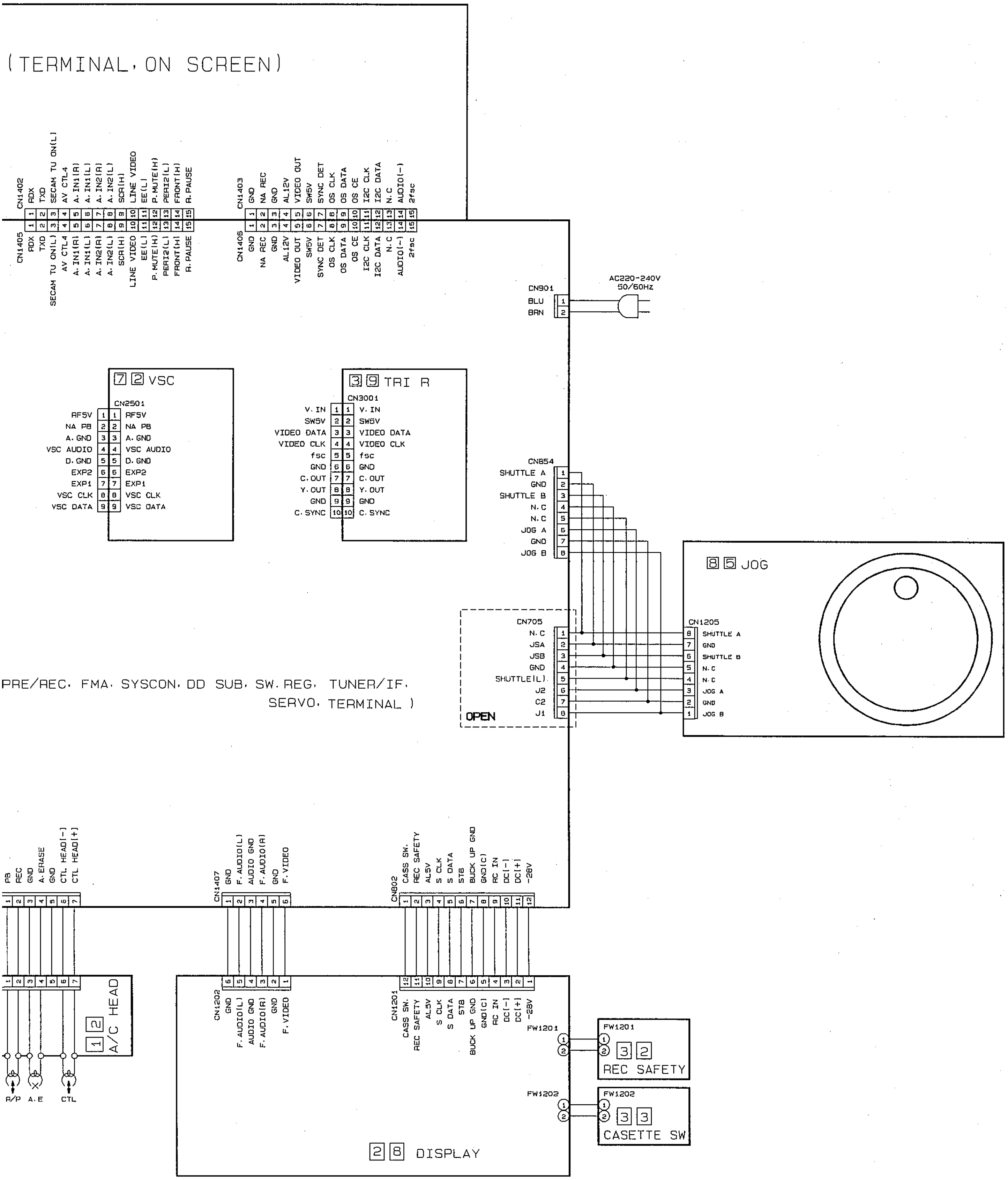
4.1 BOARD INTERCONNECTIONS



0 6 TERMINAL(TE
0 3 MAIN
(VIDEO/N.AUDIO, PRE/R
1 4 DEMOD
OPEN
OPEN
RF IN
RF OUT
TUNER UNIT
TU1001
① BB(5V)
② AUDIO
③ I2C DATA
④ MB(5V)
⑤ I2C CLK
⑥ VIDEO
⑦ BTL(MOD)
⑧ N.C
⑨ AGC
⑩ IF
⑪ +B(9V)
⑫ BPL(5V)
⑬ BTL(30V)
⑭ CLOCK
⑮ DATA
⑯ ENABLE
⑰ LOCK
CN1
1 LP CH1
2 LP COM
3 LP CH2
4 SP CH1
5 SP COM
6 SP CH2
7 FMA CH1
8 FMA COM
9 FMA CH2
LP CH1
LP CH2
SP CH1
SP CH2
FMA CH1
FMA CH2
U.DRUM
CN1401
DEMOD(R)
DEMOD(L)
F.VIDEO
GND
F.AUDIO(R)
RF5V
GND
TU VIDEO
A.WIDE(H)
TU AUDIO
LINE OUT(R)
LINE OUT(L)
TU12V
RF VIDEO
GND
CN1404
CN1402
RDX
TXD
CN1405
IF UNIT
UN1001
CN2101
14 SECAM VL(H)
13 SECAM TU ON(L)
12 SIF OUT
11 IF AGC OUT
10 SYNC SEP OUT
9 VIDEO OUT
8 N.C
7 AFC OUT
6 RF AGC
5 MUTE IN
4 AUDIO OUT
3 +B(9V)
2 GND
1 IF IN
UN1501
CN1501
10 5 FM SOUND
9 4 SIF
8 3 DEMOD OUT(L)
7 2 GND
6 1 DEMOD OUT(R)
CN1502
5 SW12V
4 SW5V
3 GND
2 DEMOD CLK
1 DEMOD DATA
CN851
1 SW5V
2 GND
3 DD ABS
4 DD MFG
5 DDM FWD
6 DDM REV
DD SENSOR
DD MOTOR
M
CN302
FULL ERASE
GND
F.E
CN1102
DRUM_12V
M.GND
FG/PG
V.CTL
DRUM MOTOR
CN701
CAP FG
SW5V
CAP REV(L)
CAP CTL(V)
M 12V/17V
GND
NC
M.GND
CAP MDA
CN702
LSB
NC
LSA
LSC
GND
ROTARY ENCODER
CN703
LDM1
LDM2
LOADING MOTOR
CN301
PB
REC
GND
A.ERASE
CN1
R/P
A.E
1
2
3
4
5
A
B
C
D

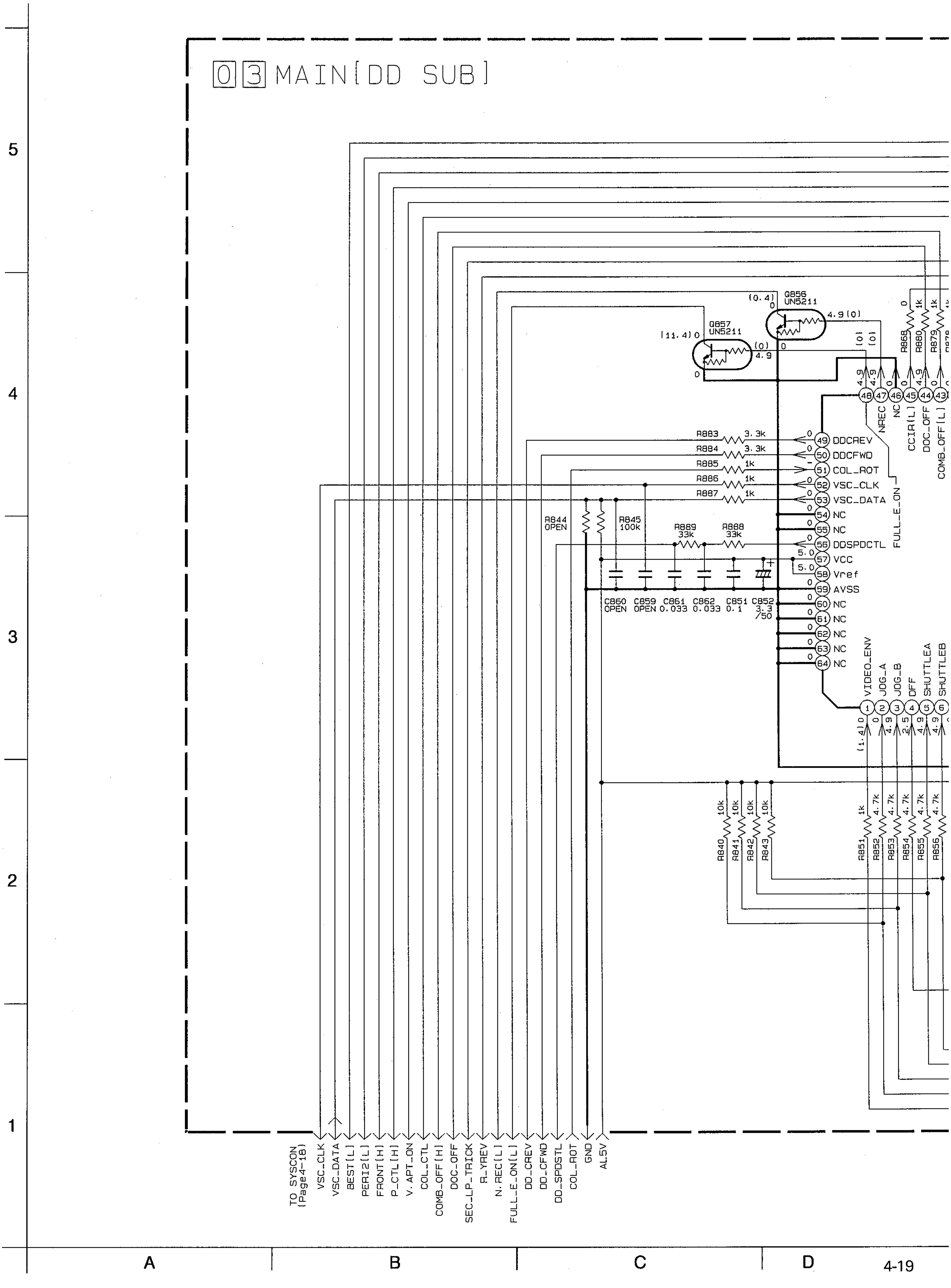
NO	NAME
8 5	JOG
7 2	VSC
3 9	TRI-R
3 3	CASETTE SW
3 2	REC SAFETY
2 8	DISPLAY
1 2	A/C HEAD
0 6	TERMINAL
0 3	MAIN

TION 4
ND DIAGRAMS

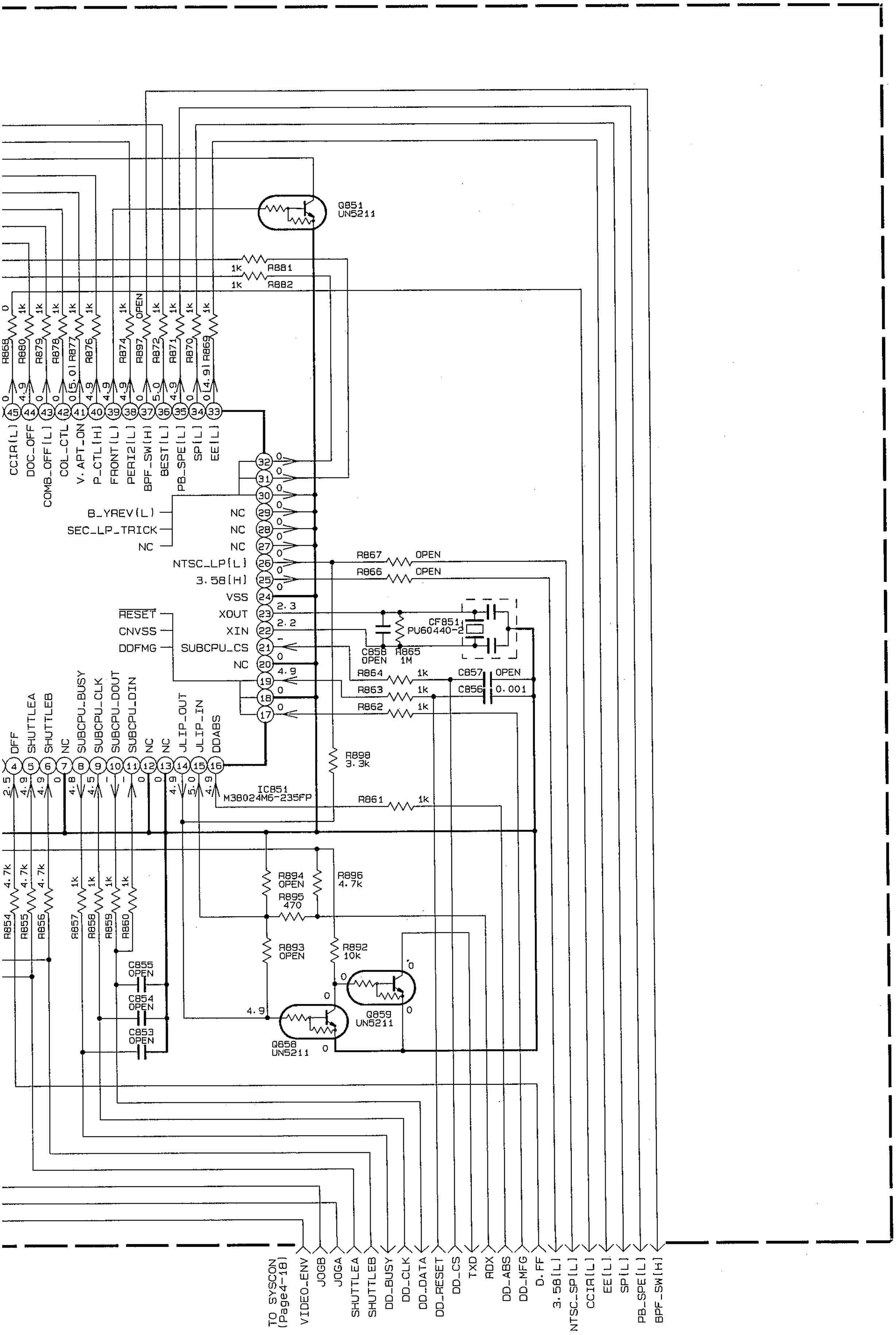


(TERMINAL, ON SCREEN)
CN1402
RDX
TXD
SECAM TU ON(L)
AV CTL4
A.IN1(R)
A.IN1(L)
A.IN2(R)
A.IN2(L)
SCR(H)
LINE VIDEO
EE(L)
P.MUTE(H)
PERI2(L)
FRONT(H)
R.PAUSE
CN1405
CN1403
GND
NA REC
GND
AL12V
VIDEO OUT
SW5V
SYNC DET
OS CLK
OS DATA
OS CE
I2C CLK
I2C DATA
N.C
AUDIO(-)
2fsc
CN901
BLU
BRN
AC220-240V
50/60HZ
72 VSC
CN2501
RF5V
NA PB
A.GND
VSC AUDIO
D.GND
EXP2
EXP1
VSC CLK
VSC DATA
39 TRI R
CN3001
V.IN
SW5V
VIDEO DATA
VIDEO CLK
fsc
GND
C.OUT
Y.OUT
GND
C.SYNC
CN854
SHUTTLE A
GND
SHUTTLE B
N.C
N.C
JOG A
GND
JOG B
85 JOG
CN1205
SHUTTLE A
GND
SHUTTLE B
N.C
N.C
JOG A
GND
JOG B
CN705
N.C
JSA
JSB
GND
SHUTTLE(L)
J2
C2
J1
OPEN
PRE/REC, FMA, SYSCON, DD SUB, SW.REG, TUNER/IF,
SERVO, TERMINAL)
PB
REC
GND
A.ERASE
GND
CTL HEAD(-)
CTL HEAD(+)
12 A/C HEAD
R/P
A.E
CTL
CN1407
GND
F.AUDIO(L)
AUDIO GND
F.AUDIO(R)
GND
F.VIDEO
CN1202
CN802
CASS SW.
REC SAFETY
AL5V
S CLK
S DATA
STB
BUCK UP GND
GND(C)
RC IN
DC(-)
DC(+)
-28V
CN1201
FW1201
FW1202
32 REC SAFETY
33 CASETTE SW
28 DISPLAY

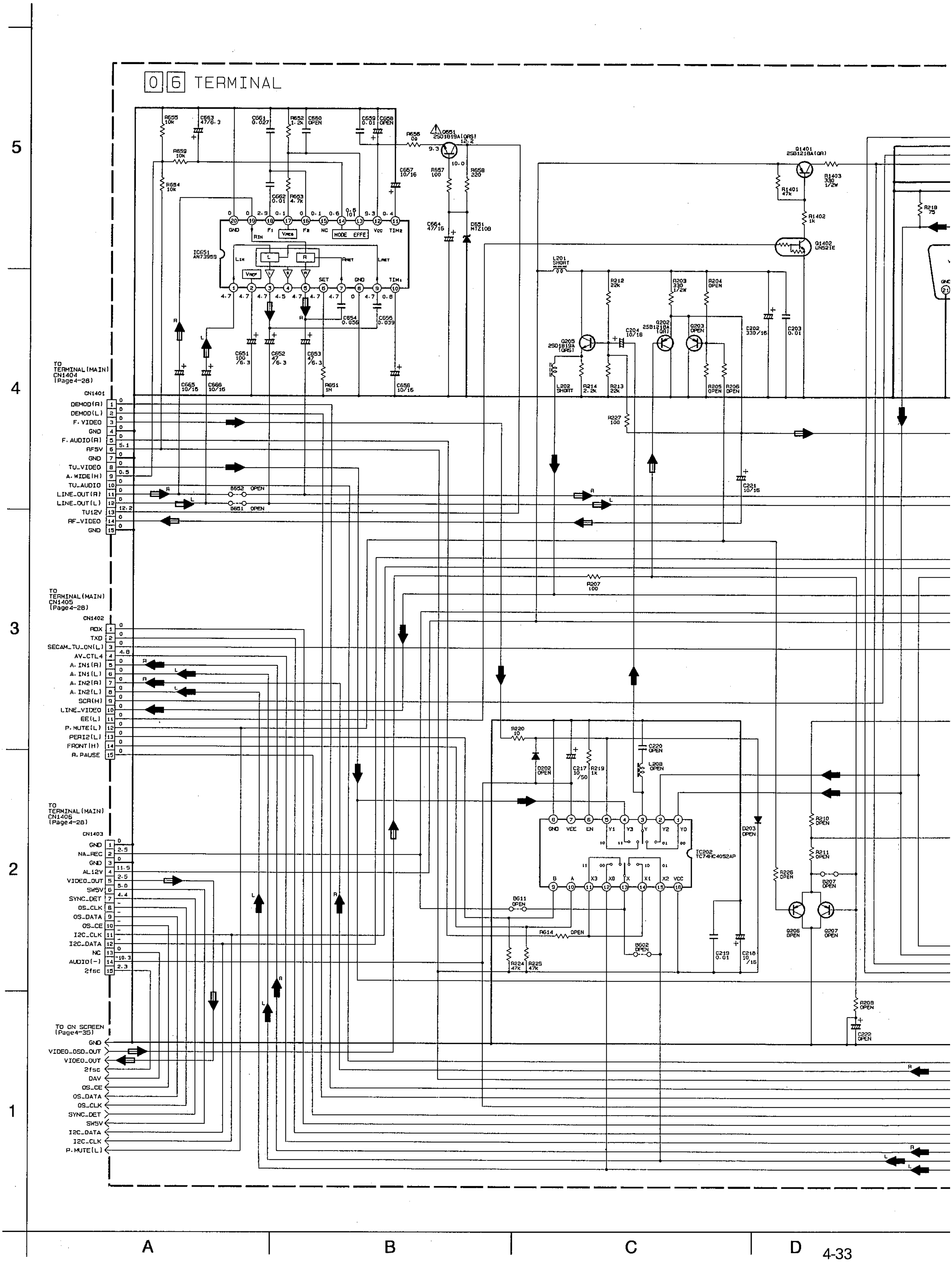
4.9 DD SUB SCHEMATIC DIAGRAM

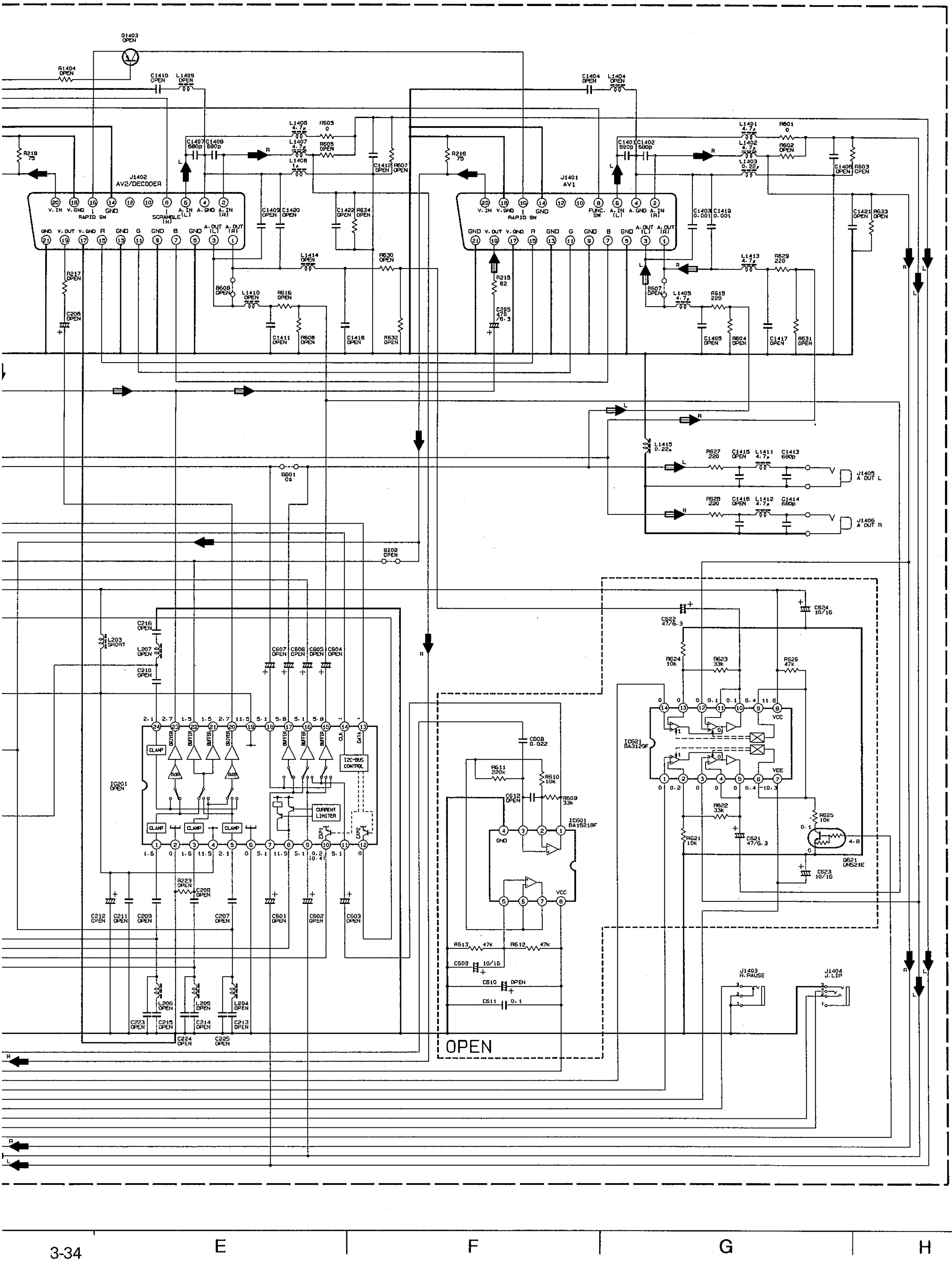


03 MAIN[DD SUB]
Q857
UN5211
Q856
UN5211
(11.4) 0
(0.4) 0
4.9(0)
(0)
4.9
R868 0
R880 1k
R879 1k
R883 3.3k
R884 3.3k
R885 1k
R886 1k
R887 1k
R844 OPEN
R845 100k
R889 33k
R888 33k
C860 OPEN
C859 OPEN
C861 0.033
C862 0.033
C851 0.1
C852 3.3 /50
48
47 NREC
46 NC
45 CCIR(L)
44 DOC_OFF
43 COMB_OFF(L)
49 DDCREV
50 DDCFWD
51 COL_ROT
52 VSC_CLK
53 VSC_DATA
54 NC
55 NC
56 DDSPDCTL
57 VCC
58 Vref
59 AVSS
60 NC
61 NC
62 NC
63 NC
64 NC
FULL_E_ON
5.0
1 VIDEO_ENV
2 JOG_A
3 JOG_B
4 DFF
5 SHUTTLEA
6 SHUTTLEB
(1.4) 0
R840 10k
R841 10k
R842 10k
R843 10k
R851 1k
R852 4.7k
R853 4.7k
R854 4.7k
R855 4.7k
R856 4.7k
TO SYSCON (Page4-18)
VSC_CLK
VSC_DATA
BEST(L)
PERI2(L)
FRONT(H)
P_CTL(H)
V.APT_ON
COL_CTL
COMB_OFF(H)
DOC_OFF
SEC_LP_TRICK
R_YREV
N.REC(L)
FULL_E_ON(L)
DD_CREV
DD_CFWD
DD_SPDSTL
COL_ROT
GND
AL5V
5
4
3
2
1
A
B
C
D


Q851
UN5211
1k R881
1k R882
R868 0
R880 1k
R879 1k
R878 1k
R877 1k
R876 1k
R874 1k
R897 OPEN
R872 1k
R871 1k
R870 1k
R869 1k
0 45 CCIR(L)
4.9 44 DOC_OFF
0 43 COMB_OFF(L)
0 42 COL_CTL
0 (5.0) 41 V.APT_ON
4.9 40 P_CTL(H)
4.9 39 FRONT(L)
4.9 38 PERI2(L)
0 37 BPF_SW(H)
5.0 36 BEST(L)
4.9 35 PB_SPE(L)
0 34 SP(L)
0 (4.9) 33 EE(L)
32 0
31 0
30 0
B_YREV(L)
SEC_LP_TRICK
NC
NC 29 0
NC 28 0
NC 27 0
NTSC_LP(L) 26 0
3.58(H) 25 0
VSS 24
XOUT 23 2.3
XIN 22 2.2
SUBCPU_CS 21 -
NC 20 0
19 4.9
18 0
17 0
RESET
CNVSS
DDFMG
R867 OPEN
R866 OPEN
CF851
PU60440-2
C858 OPEN
R865 1M
R864 1k
C857 OPEN
R863 1k
C856 0.001
R862 1k
DFF 4 2.5
SHUTTLEA 5 4.9
SHUTTLEB 6 4.9
NC 7 0
SUBCPU_BUSY 8 4.8
SUBCPU_CLK 9 4.5
SUBCPU_DOUT 10 -
SUBCPU_DIN 11 -
NC 12 0
NC 13 0
JLIP_OUT 14 4.9
JLIP_IN 15 5.0
DDABS 16 4.9
IC851
M38024M6-235FP
R898 3.3k
R861 1k
R854 4.7k
R855 4.7k
R856 4.7k
R857 1k
R858 1k
R859 1k
R860 1k
C855 OPEN
C854 OPEN
C853 OPEN
R894 OPEN
R896 4.7k
R895 470
R893 OPEN
R892 10k
Q859 UN5211
Q858 UN5211
4.9
0
0
0
0
0
TO SYSCON (Page4-18)
VIDEO_ENV
JOGB
JOGA
SHUTTLEA
SHUTTLEB
DD_BUSY
DD_CLK
DD_DATA
DD_RESET
DD_CS
TXD
RDX
DD_ABS
DD_MFG
D.FF
3.58(L)
NTSC_SP(L)
CCIR(L)
EE(L)
SP(L)
PB_SPE(L)
BPF_SW(H)

4.15 TERMINAL SCHEMATIC DIAGRAM


06 TERMINAL
IC651 AN7395S
R655 10k
C663 47/6.3
C661 0.027
R652 1.2k
C660 OPEN
C659 0.01
C658 OPEN
R656 0Ω
Q651 2SD1819A(QRS)
R659 10k
R654 10k
C662 0.01
R653 4.7k
C657 10/16
R657 100
R658 220
C664 47/16
D651 MTZ10B
C651 100/6.3
C652 47/6.3
C653 47/6.3
R651 1M
C654 0.056
C655 0.039
C665 10/16
C666 10/16
C656 10/16
B652 OPEN
B651 OPEN
Q1401 2SB1218A(QR)
R1403 330 1/2W
R1401 47k
R1402 1k
Q1402 UN521E
R218 75
L201 SHORT
R212 22k
R203 330 1/2W
R204 OPEN
Q202 2SB1218A(QR)
Q203 OPEN
Q205 2SD1819A(QRS)
C204 10/16
C202 330/16
C203 0.01
L202 SHORT
R214 2.2k
R213 22k
R205 OPEN
R206 OPEN
R227 100
C221 10/16
R207 100
R220 10
D202 OPEN
C217 10/50
R219 1k
C220 OPEN
L208 OPEN
IC202 TC74HC4052AP
D203 OPEN
R210 OPEN
R211 OPEN
R207 OPEN
R226 OPEN
Q206 OPEN
Q207 OPEN
B611 OPEN
R614 OPEN
B602 OPEN
R224 47k
R225 47k
C219 0.01
C218 10/16
R208 OPEN
C222 OPEN
TO TERMINAL(MAIN) CN1404 (Page4-28)
CN1401
DEMOD(R)
DEMOD(L)
F.VIDEO
GND
F.AUDIO(R)
RF5V
GND
TU_VIDEO
A.WIDE(H)
TU_AUDIO
LINE_OUT(R)
LINE_OUT(L)
TU12V
RF_VIDEO
GND
TO TERMINAL(MAIN) CN1405 (Page4-28)
CN1402
RDX
TXD
SECAM_TU_ON(L)
AV_CTL4
A.IN1(R)
A.IN1(L)
A.IN2(R)
A.IN2(L)
SCR(H)
LINE_VIDEO
EE(L)
P.MUTE(L)
PERI2(L)
FRONT(H)
R.PAUSE
TO TERMINAL(MAIN) CN1406 (Page4-28)
CN1403
GND
NA_REC
GND
AL12V
VIDEO_OUT
SW5V
SYNC_DET
OS_CLK
OS_DATA
OS_CE
I2C_CLK
I2C_DATA
NC
AUDIO(-)
2fsc
TO ON SCREEN (Page4-35)
GND
VIDEO_OSD_OUT
VIDEO_OUT
2fsc
DAV
OS_CE
OS_DATA
OS_CLK
SYNC_DET
SW5V
I2C_DATA
I2C_CLK
P.MUTE(L)
5
4
3
2
1
A
B
C
D

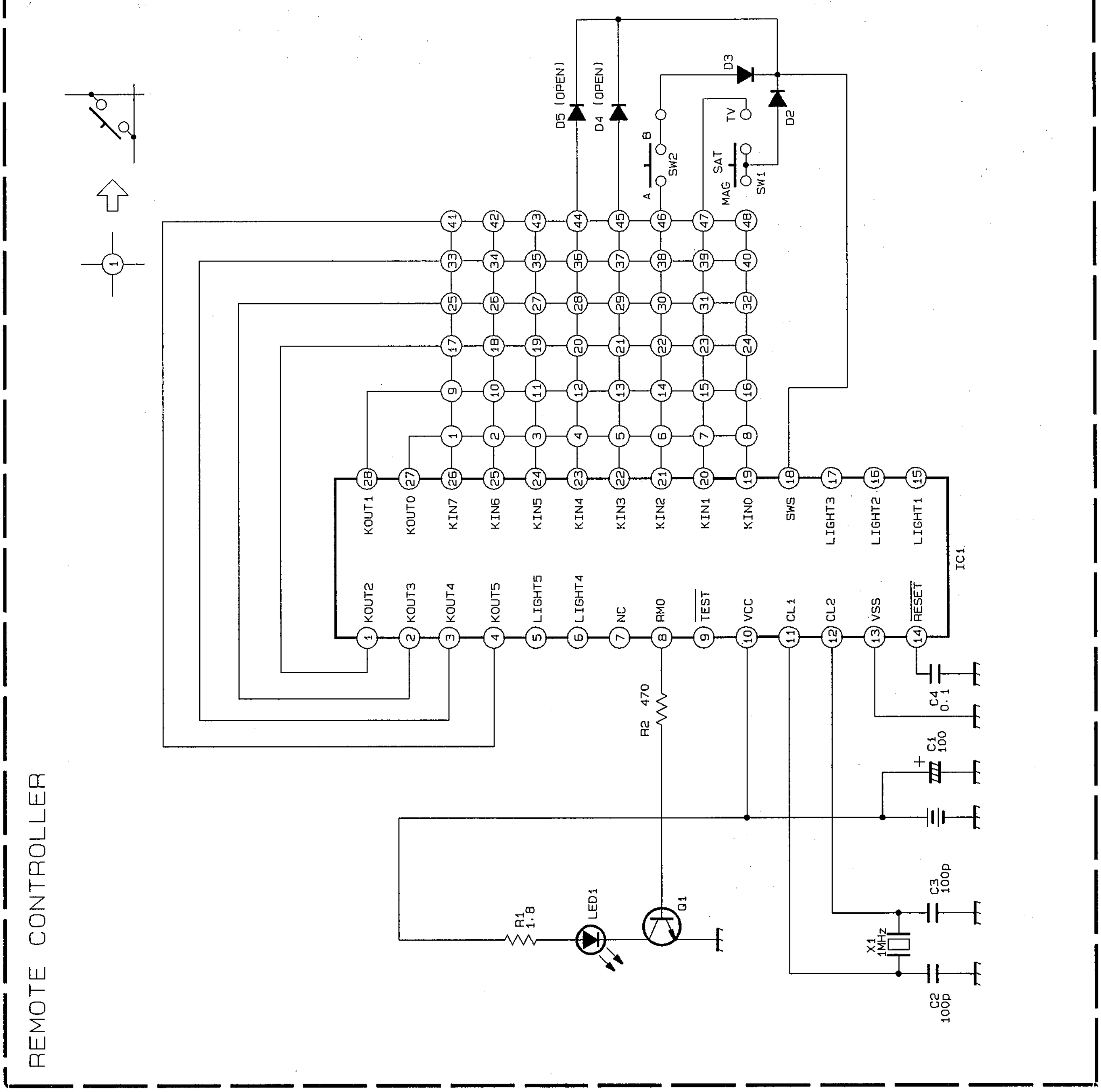

Q1403 OPEN
R1404 OPEN
C1410 OPEN
L1409 OPEN
C1404 OPEN
L1404 OPEN
L1406 4.7μ
R605 0
L1407 4.7μ
R606 OPEN
L1408 1μ
C1407 680p
C1408 680p
R218 75
J1402 AV2/DECODER
V.IN V.GND RAPID SW GND SCRAMBLE (H) A.IN (L) A.GND A.IN (R)
GND V.OUT V.GND R GND G GND B GND A.OUT (L) A.OUT (R)
C1409 OPEN
C1420 OPEN
C1412 OPEN
R607 OPEN
C1422 OPEN
R634 OPEN
L1414 OPEN
R630 OPEN
R217 OPEN
C206 OPEN
R608 OPEN
L1410 OPEN
R616 OPEN
C1411 OPEN
R609 OPEN
C1418 OPEN
R632 OPEN
R216 75
J1401 AV1
V.IN V.GND RAPID SW GND FUNC. SW A.IN (L) A.GND A.IN (R)
GND V.OUT V.GND R GND G GND B GND A.OUT (L) A.OUT (R)
R215 82
C205 470 /6.3
C1401 680p
C1402 680p
L1401 4.7μ
R601 0
L1402 4.7μ
R602 OPEN
L1403 0.22μ
C1406 OPEN
R603 OPEN
C1403 0.001
C1419 0.001
C1421 OPEN
R633 OPEN
L1413 4.7μ
R629 220
R607 OPEN
L1405 4.7μ
R615 220
C1405 OPEN
R604 OPEN
C1417 OPEN
R631 OPEN
L1415 0.22μ
R627 220
C1415 OPEN
L1411 4.7μ
C1413 680p
J1405 A OUT L
R628 220
C1416 OPEN
L1412 4.7μ
C1414 680p
J1406 A OUT R
B601 0Ω
B202 OPEN
C216 OPEN
L203 SHORT
L207 OPEN
C210 OPEN
C607 OPEN
C606 OPEN
C605 OPEN
C604 OPEN
IC201 OPEN
CLAMP
DRIVER
BUFFER
6dB
CLK
DATA
I2C-BUS CONTROL
CURRENT LIMITER
EXP1
EXP2
R223 OPEN
C208 OPEN
C212 OPEN
C211 OPEN
C209 OPEN
C207 OPEN
C601 OPEN
C602 OPEN
C603 OPEN
L206 OPEN
L205 OPEN
L204 OPEN
C223 OPEN
C215 OPEN
C214 OPEN
C213 OPEN
C224 OPEN
C225 OPEN
C608 0.022
R611 220k
R610 10k
C612 OPEN
R609 33k
IC601 BA15218F
GND
VCC
R613 47k
R612 47k
C609 10/16
C610 OPEN
C611 0.1
OPEN
C622 47/6.3
C624 10/16
R624 10k
R623 33k
R626 47k
IC621 BA3129F
VCC
VEE
R622 33k
R621 10k
C621 47/6.3
R625 10k
Q621 UN521E
C623 10/16
J1403 R.PAUSE
J1404 J.LIP
R
L

4.27 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

Key No.	Key Name
1	PUSH JOG >>
2	-
3	R.A.EDIT
4	SCENE FINDER
5	PRG CHECK
6	7
7	8
8	9
9	ILLUMI GUIDE
10	TV PROG +
11	CURSOR +/TV VOL +
12	PROG/MENU
13	OK
14	CANCEL
15	0
16	TIMER
17	OPERATE
18	-
19	AUDIO MONITOR
20	-/--
21	TV/VCR
22	RE_VIEW
23	CH SEARCH
24	CH STORE
25	STOP -
26	DATE +
27	DATE -
28	START -
29	TV PROG -
30	C.MEMORY
31	DISPLAY
32	SPATIALIZER
33	START +
34	PUSH JOG >>
35	PLAY
36	REW
37	FF
38	1
39	2
40	3
41	CURSOR -/TV VOL -
42	STOP +
43	STOP
44	REC
45	PAUSE
46	4
47	5
48	6
44+35	REC START
44+45	REC PAUSE

PEAC0505



D5 (OPEN)
D4 (OPEN)
D3
D2
TV
SAT
MAG
SW1
B
A
SW2
1
KOUT1
KOUT0
KIN7
KIN6
KIN5
KIN4
KIN3
KIN2
KIN1
KIN0
SWS
LIGHT3
LIGHT2
LIGHT1
IC1
KOUT2
KOUT3
KOUT4
KOUT5
LIGHT5
LIGHT4
NC
RMO
TEST
VCC
CL1
CL2
VSS
RESET
C4 0.1
C1 100
R2 470
C3 100p
X1 1MHz
C2 100p
R1 1.8
LED1
Q1
REMOTE CONTROLLER

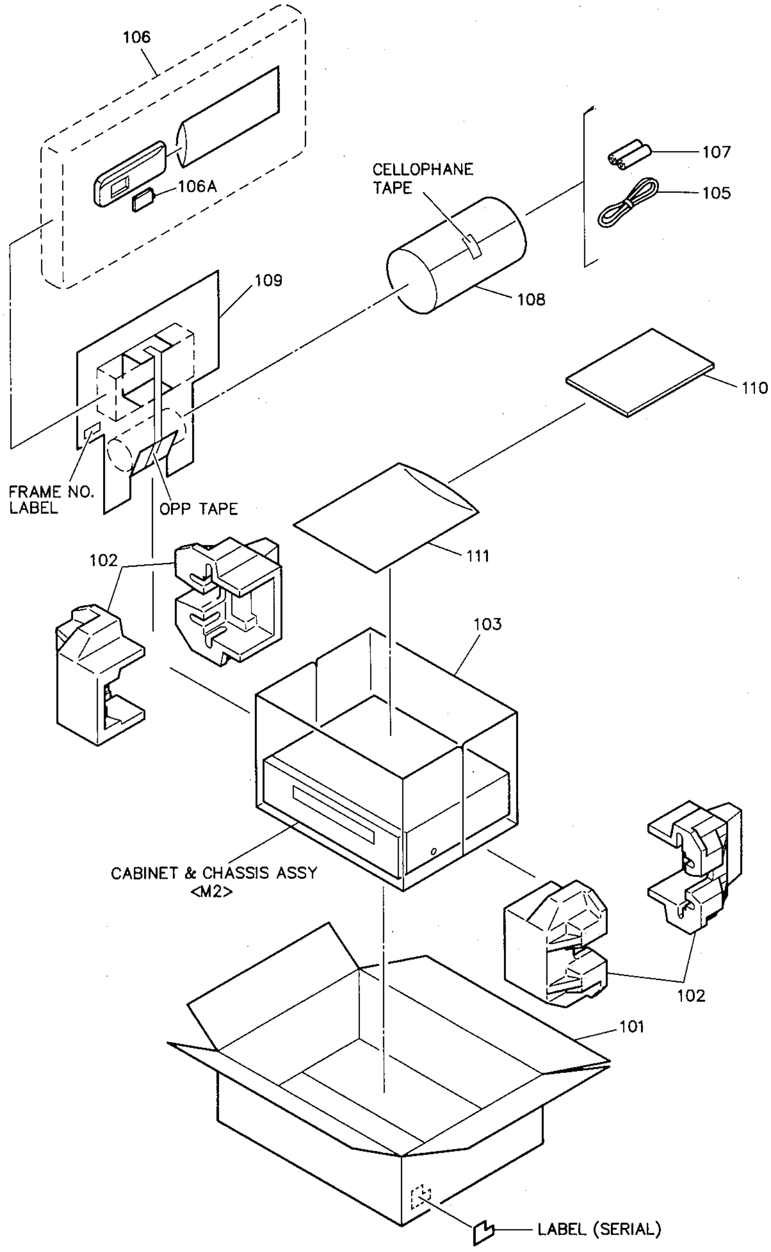
5
4
3
2
1
A
B
C
D

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>


106
106A
CELLOPHANE TAPE
107
105
109
108
110
FRAME NO. LABEL
OPP TAPE
111
102
103
CABINET & CHASSIS ASSY <M2>
102
101
LABEL (SERIAL)

****

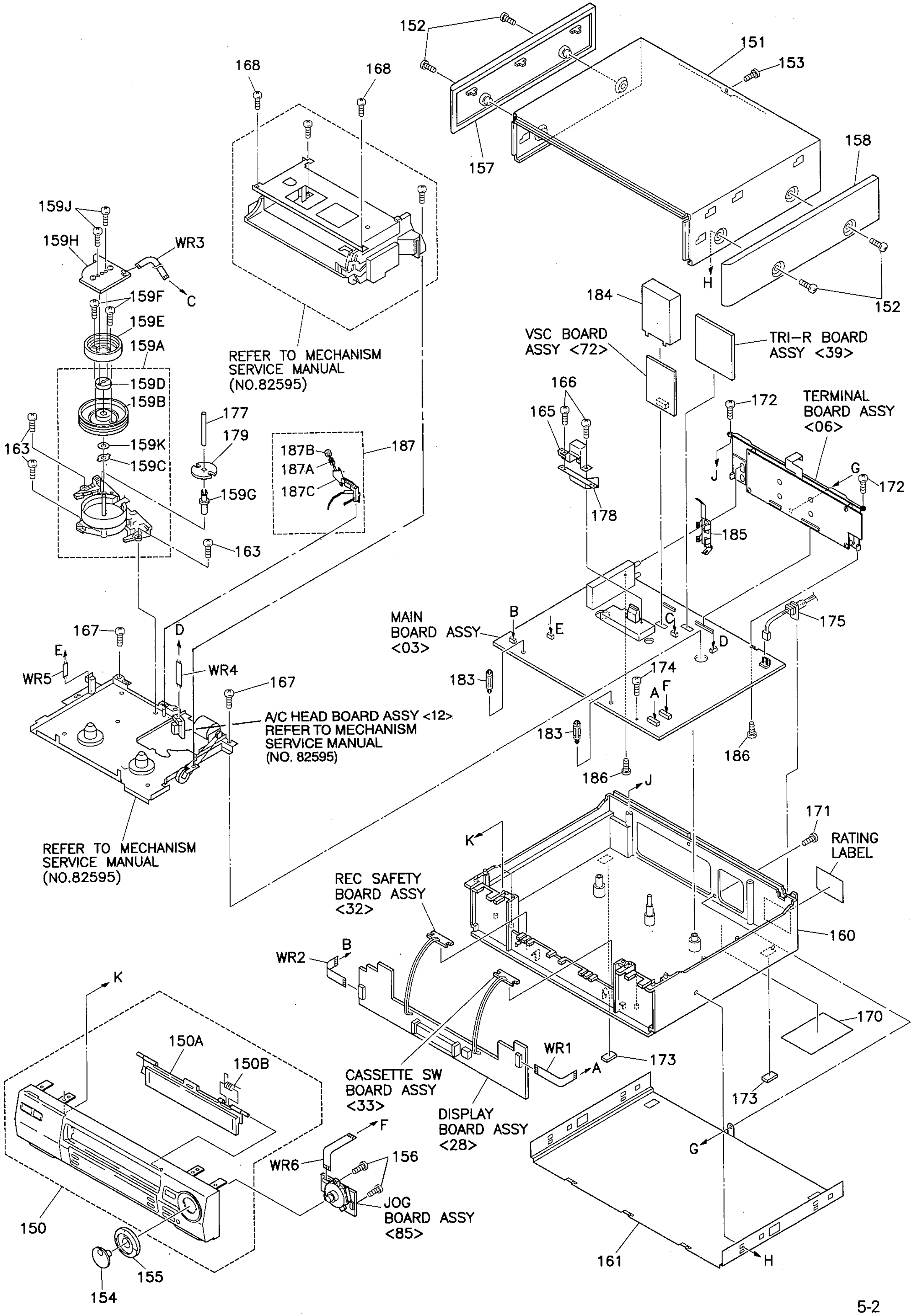
PACKING AND ACCESSORY ASSEMBLY <M1>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	101	LP30183-008A	PACKING CASE
	102	LP30318-001A	CUSHION ASSEMBLY
	103	PQM30021-95	POLY BAG
	105	PU59168-7	RF CABLE
	106	PQ21953U-7	REMOTE CONTROLLER
	106A	PQ46614	COVER(BATTERY)
	107	R6PRPA-2ST	BATTERY ,X2
	108	QPC02202215P	POLY BAG
	109	PQ35575-1-1	SHEET,REMOTE CONTROLLER
⚠	110	LPT0002-0K1A	INST BOOK (EN)
⚠		LPT0002-0K2A	INST BOOK (CZ,PO)
⚠		LPT0002-0L9A	INST BOOK (RU,HU)
	111	QPC02503515P	POLY BAG

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.


152
168
168
151
153
157
158
159J
159H
WR3
C
159F
159E
159A
159D
159B
159K
159C
163
163
163
177
179
159G
187B
187A
187C
187
REFER TO MECHANISM SERVICE MANUAL (NO.82595)
H
152
184
VSC BOARD ASSY <72>
TRI-R BOARD ASSY <39>
166
165
172
TERMINAL BOARD ASSY <06>
J
G
172
178
185
167
E
WR5
D
WR4
167
A/C HEAD BOARD ASSY <12> REFER TO MECHANISM SERVICE MANUAL (NO. 82595)
MAIN BOARD ASSY <03>
B
E
C
D
175
183
174
A
F
183
186
186
J
REFER TO MECHANISM SERVICE MANUAL (NO.82595)
K
171
RATING LABEL
REC SAFETY BOARD ASSY <32>
B
WR2
160
K
170
150A
150B
WR1
A
173
173
CASSETTE SW BOARD ASSY <33>
F
DISPLAY BOARD ASSY <28>
G
WR6
156
JOG BOARD ASSY <85>
150
155
154
161
H

****

CABINET AND CHASSIS ASSEMBLY <M2>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	150	LP10033-008A	FRONT PANEL ASSY
	150A	PQ21884-34	CASSETTE DOOR
	150B	PQ46448	TORSION SPRING
⚠	151	PQ11676-39	TOP COVER
	152	PQ43930	SCREW,X4 TOP COVER(SIDE)
	153	SDSF3010M	SCREW,TOP COVER(REAR)
	154	LP30121-002A	KNOB(JOG)
	155	LP30120-002A	KNOB(SHUTTLE)
	156	SDSF2608Z	SCREW,X2 JOG BOARD
	157	LP30153-001A	SIDE PANEL(L)
	158	LP10036-001A	SIDE PANEL(R)
	159A	PDM2301M	DRUM SUB ASSEMBLY
	159B	PDM3353BH	UPPER DRUM ASSY
	159C	PDM4440A	BRUSH ASSY
	159D	PDM4345A	COLLAR ASSY
	159E	PDZ0179	ROTOR ASSY
	159F	SPSH2660Z	SCREW,X2
	159G	PDM4311A-1	ROLLER ASSY
⚠	159H	PDZ0181-2	STATOR ASSY
	159J	PDM4434	SPECIAL SCREW,X2
	159K	PDM4050-9	WASHER
⚠	160	PQ11666-3-14	BOTTOM CHASSIS
⚠	161	PQ11668-2	BOTTOM COVER
	163	PQ46808	SPECIAL SCREW,X3 DRUM
	165	PQ35385-1-2	SHIELD COVER,PRE
	166	SDST2606Z	SCREW,X2 PRE
	167	SDSF4012Z	SCREW,X2 MECHANISM
	168	SDSF3010Z	SCREW,X2 CASSETTE HOUSING
⚠	170	PQ46485	SPACER(SAFETY)
	171	SDSF3010M	SCREW,TERMINAL
	172	SDSF3010Z	SCREW,X2 TERMINAL
	173	PQ43013-3	FOOT,X2
	174	SDSF3010Z	SCREW,MAIN
⚠	175	QMP4A10-170	POWER CORD
	177	LP40058-001B	PIN,DRUM
	178	LP40140-001A	SHIELD PLATE
	179	PQ45160	INERTIA PLATE
	183	PEME0947-01-01	SPACER,X2
	184	PQ35567	SHIELD CASE,VSC BOARD
	185	PQ21623-1-2	EARTH PLATE(RF)
	186	SDSF3008Z	SCREW,X2 TERMINAL BOARD
	187	PQ46436A-1	CLEANER ASSY
	187A	PQ46418-1-2	CLEANER ROLLER
	187B	PQ46419-1-2	CLEANER
	187C	PQ35159-1-1	CLEANER ARM
	WR1	PW30802-1214	FFC WIRE,DISPLAY CN802
	WR2	PW30802-0614	WIRE,DISPLAY CN1407
	WR3	PW30803-0414	FFC,DRUM CN1102
	WR4	PW30101-C0HH887	WIRE,A/C HEAD CN301
	WR5	PW30101-D0HH882	WIRE,FE HEAD CN302
	WR6	PW30802-0818	FFC WIRE,JOG CN854

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION

For the MECHANISM ASSY and CASSETTE HOUSING ASSY parts list, Please refer to the MECHANISM ASSEMBLY of the service manual (No. 82595)

VICTOR COMPANY OF JAPAN, LIMITED

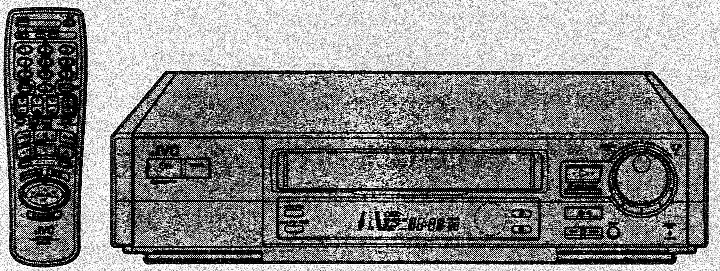
Printed in Japan
9709 (Sanwa)-V10D36

JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-DD949E/EH



TIME SCAN

SHOWVIEW

Hi-Fi VHS PAL

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-DD949E/EH)*

GENERAL

Power requirement : AC 220 – 240 V∿, 50/60 Hz
Power consumption : 24 W
Temperature
  Operating : 5°C to 40°C
  Storage : –20°C to 60°C
Operating position : Horizontal only
Dimensions (WxHxD) : 430 x 94 x 348 mm
Weight : 4.5 kg
Format : VHS PAL standard
Maximum recording time
  (SP) : 240 min. with E-240 video cassette
  (LP) : 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system : PAL-type colour signal and CCIR monochrome signal,625 lines 50 fields
Recording system : DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio : 45 dB
Horizontal resolution : 250 lines
: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
: 21-pin scart connectors : IN/OUT x 1, IN/DECODER x 1
RCA connectors:
VIDEO IN x 1, AUDIO IN x 1,
AUDIO OUT x 1

TUNER/TIMER

TV channel storage capacity : 99 positions (+AUX position "AU")
Tuning system : Frequency synthesized tuner
Channel coverage : VHF 47 – 89/104 – 300/302 – 470MHz
UHF 470 – 862MHz
Aerial output : UHF channels 22 – 69 (Adjustable)
Memory backup time : Approx. 60 min.

ACCESSORIES

Provided accessories : RF cable,
Infrared remote control unit,
"R6" battery x 2

Specifications shown are for SP mode unless otherwise specified.
E.& O.E. Design and specifications subject to change without notice.

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No.82597
May 1997

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6. TECHNICAL INFORMATION

6.1 SYSCON CIRCUIT 6-1

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

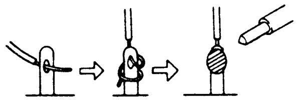


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

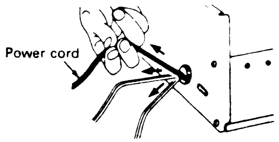


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

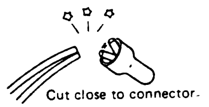


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

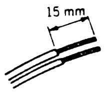


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

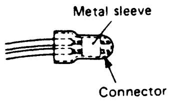


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

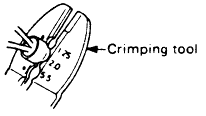


Fig. 6

(5) Check the four points noted in Fig. 7.

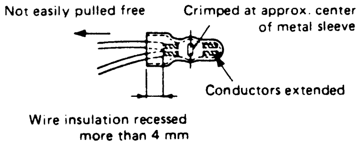

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

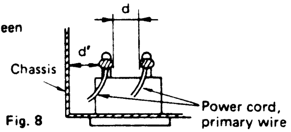


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

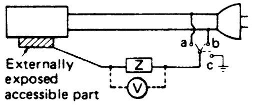


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

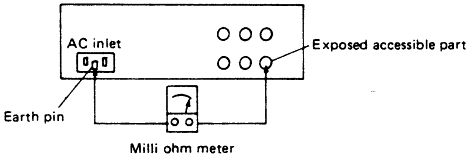


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

INSTRUCTIONS
(These instructions refer to the HR-DD949E/EH)

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM West), and SECAM-B, used in Eastern European countries (also called SECAM East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

For Italy:

"It is declared that this product, brand JVC, conforms to the Ministry Decree n. 548 of 28 Aug.'95 published in the Official Gazette of the Italian Republic n. 301 of 28 Dec.'95"

VHS PAL HQ ShowView

- Only cassettes marked "VHS" can be used with this videorecorder.
- HQ VHS is compatible with existing VHS equipment.
- ShowView is a registered trademark of Gemstar Development Corporation. The ShowView system is manufactured under licence from Gemstar Development Corporation.
- Certain audio features of this product manufactured under a license from Desper Products, Inc. Spatializer® is a trademark owned by Desper Products, Inc.

IMPORTANT

- Please read the various precautions on this page before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

The STANDBY/ON ⏻/I button does not completely shut off mains power from the unit, but switches operating current on and off. " ⏻ " shows electrical power standby and " I " shows ON.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Failure to heed the following precautions may result in damage to the recorder, remote control or video cassette.

1. DO NOT place the recorder . . .
... in an environment prone to extreme temperatures or humidity.
... in direct sunlight.
... in a dusty environment.
... in an environment where strong magnetic fields are generated.
... on a surface that is unstable or subject to vibration.

2. DO NOT block the recorder's ventilation openings.
3. DO NOT place heavy objects on the recorder or remote control.
4. DO NOT place anything which might spill on top of the recorder or remote control.
5. AVOID violent shocks to the recorder during transport.

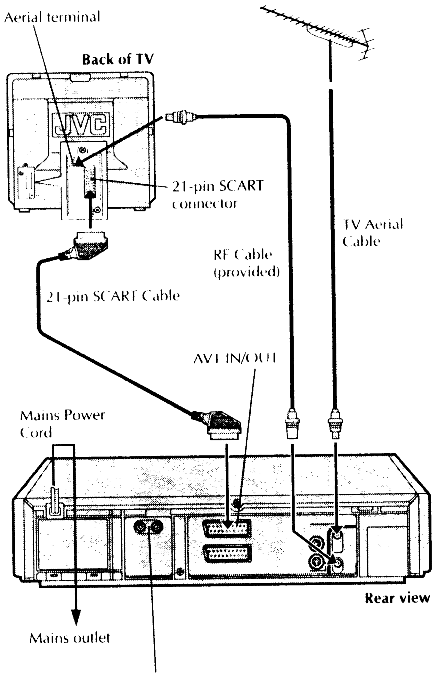
MOISTURE CONDENSATION

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder turned on for a few hours to let the moisture dry.

ABOUT HEAD CLEANING

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.

Basic Connections



AUDIO OUT(put) connectors
For connection to the audio input connectors on a Hi-Fi stereo system

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

1 CHECK CONTENTS

Make sure the package contains all of the accessories listed in "Specifications" (☞ pg. 57).

2 SITUATE RECORDER

Place the recorder on a stable, horizontal surface.

3 CONNECT RECORDER TO TV

The connection method you use depends on the type of TV you have.

RF CONNECTION

- *To Connect To A TV With NO AV Input Terminals . . .*
  - **a–** Disconnect the TV aerial cable from the TV.
  - **b–** Connect the TV aerial cable to the ANT. IN jack on the rear panel of the recorder.
  - **c–** Connect the provided RF cable between the RF OUT jack on the rear panel of the recorder and the TV's aerial terminal

Before operating the recorder, make sure the TV's channel is set to the VIDEO channel (☞ pg. 8).

AV CONNECTION

- *To Connect To A TV With AV Input Terminals . . .*
  - **a–** Connect the aerial, recorder and TV as per "RF CONNECTION".
  - **b–** Connect an optional SCART cable between the AV1 IN/OUT socket on the rear panel of the recorder and the TV's 21-pin SCART connector.

Before operating the recorder, make sure the TV is set to the VIDEO (or AV) mode.

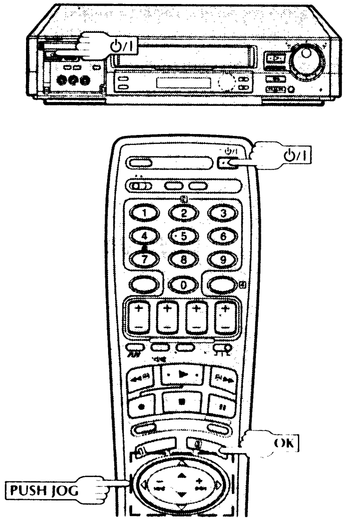
4 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

After you plug the mains power cord into a mains outlet, the Country Set display appears on the TV screen and/or on the recorder's front display panel when the ⏻/I button on the recorder/remote control is pressed for the first time to power on the recorder; go to page 4 to perform Auto Set Up.

Auto Set Up

Auto Channel Set/Auto Clock Set/Auto Guide Program Number Set



International Telephone Country Code

SUOMI	: 358	SUISSE	: 41
PORTUGAL	: 351	ITALIA	: 39
DEUTSCHLAND	: 49	ESPAÑA	: 34
NORGE	: 47	BELGIUM	: 32
SVERIGE	: 46	NEDERLAND	: 31
DANMARK	: 45	GREECE	: 30
ÖSTERREICH	: 43	OTHERS	: - -

* Depending on the model, the selectable codes may be limited.

ATTENTION

Once you have performed Auto Set Up, even if the recorder's memory backup has expired, all the stored stations and their Guide Program numbers remain in the recorder's memory and the recorder will not perform Auto Set Up again. You only need to set the clock. (☞ pg. 49)

If you have moved to a different area, perform each setting as required.

- Tuner setting ☞ pg. 44
- Clock setting ☞ pg. 49
- ShowView Guide Program number setting ☞ pg. 10

If a new station starts broadcasting in your area, perform both tuner setting (☞ pg. 44) and ShowView Guide Program number setting (☞ pg. 10).

When the ⏻/I button on the recorder/remote control is pressed for the first time to power on the recorder after you plug the mains power cord into a mains outlet, the Country Set display will appear on the TV screen and the recorder's front display panel. By simply selecting your country*, the Auto Set Up function sets the tuner channels, clock and Guide Program numbers automatically.

* If you live in Belgium or Switzerland, you also need to select the language you use.

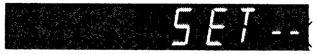
You can refer to the front display panel and/or the on-screen display to perform this procedure.

Before starting, make sure of the following:
- The TV aerial cable should be connected to the recorder.
- The recorder's mains power cord should be connected to a mains outlet. ☞ pg. 3
- If you want to use the on-screen display, the TV should be set to its AV mode (with AV connection ☞ pg. 3) or UHF channel 36 (with RF connection ☞ pg. 3).

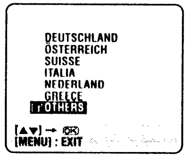
1

TURN ON THE RECORDER

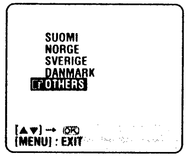
Press ⏻/I on the recorder or remote control. The Country Set display appears on the front display panel and/or on the screen.



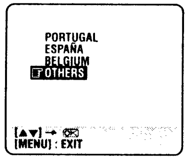
For HR-DD949E


DEUTSCHLAND
ÖSTERREICH
SUISSE
ITALIA
NEDERLAND
GREECE
☞OTHERS
[▲▼] → OK
[MENU] : EXIT

For HR-DD949EH


SUOMI
NORGE
SVERIGE
DANMARK
☞OTHERS
[▲▼] → OK
[MENU] : EXIT

For HR-DD949EH


PORTUGAL
ESPAÑA
BELGIUM
☞OTHERS
[▲▼] → OK
[MENU] : EXIT

* The on-screen display differs for the HR-DD949EH depending upon the country in which the product was purchased.

NOTE:

If you have connected your TV to the recorder with RF connection and the on-screen display appearing on UHF channel 36 looks distorted, perform this procedure referring to the front display panel.

2

SELECT COUNTRY

If you are referring to the front display panel

Press **PUSH JOG**△▽ to select your international telephone country code of your country referring to the chart in the left column.

- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step **4**.
- If you have selected 32 (BELGIUM) or 41 (SUISSE), go to step **3**.

CONTINUED ON NEXT PAGE.

If you are referring to the on-screen display

Press **PUSH JOG**△▽ to move the highlight bar (pointer) to your country's name.

- If you have selected a country other than BELGIUM or SUISSE, go to step **4**.
- If you have selected BELGIUM or SUISSE, go to step **3**.

3

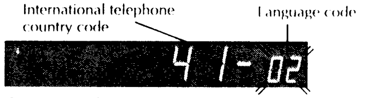
SELECT LANGUAGE

Press **OK**. the Language Set display appears on the front display panel and/or on the screen.

If you are referring to the front display panel

Press **PUSH JOG**△▽ to select your language code referring to the chart in the left column.

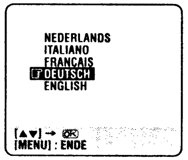
(Ex.) DEUTSCH is selected for SUISSE



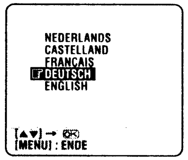
If you are referring to the on-screen display

Press **PUSH JOG**△▽ to move the highlight bar (pointer) to the language of your choice.

For HR-DD949E


NEDERLANDS
ITALIANO
FRANCAIS
☞DEUTSCH
ENGLISH
[▲▼] → OK
[MENU] : ENDE

For HR-DD949EH


NEDERLANDS
CASTELLAND
FRANCAIS
☞DEUTSCH
ENGLISH
[▲▼] → OK
[MENU] : ENDE

4

PERFORM AUTO SET UP

Press **OK**.

"Auto" appears on the display panel and blinks; do NOT press any button on the recorder or remote control until the display panel shows the current time or "CH1" or "--:--". (Refer to box on this page.)

- Auto channel set function takes place first; it assigns automatically all receivable stations in your area.
- Auto clock set function sets the clock automatically by reading the clock setting data from a station transmitting a PDC signal while auto channel set is being performed.
- During auto channel set, the recorder recognizes each station name of the detected stations and stores them in the recorder's memory, then automatically sets ShowView assigned Guide Program number for those stations according to the broadcast area.

NOTE:

In the area where no TV station transmits a PDC signal, the recorder can perform neither auto clock set nor auto Guide Program number set.

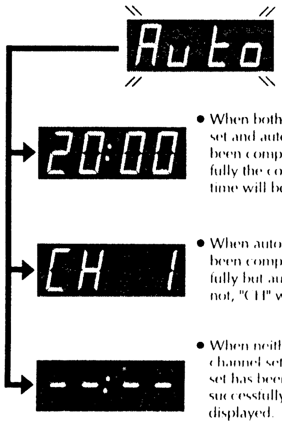
Language Code for the HR-DD949E

ENGLISH	: 01	ITALIANO	: 04
DEUTSCH	: 02	NEDERLANDS	: 05
FRANCAIS	: 03		

Language Code for the HR-DD949EH

ENGLISH	: 01	CASTELLANO	: 04
DEUTSCH	: 02	NEDERLANDS	: 05
FRANCAIS	: 03		

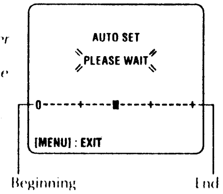
Auto Set Up results appear on the front display panel



- When both auto channel set and auto clock set have been completed successfully the correct current time will be displayed.
- When auto channel set has been completed successfully but auto clock set has not, "CH" will be displayed.
- When neither auto channel set nor auto clock set has been completed successfully, "--:--" will be displayed.
- If Auto Set Up is completed, go to page 6.

NOTES:

- *If you are using the on-screen display, the AUTO SET screen will appear after pressing* ***OK*** *in step* ***4****. As Auto Set Up progresses, the "■" mark on the screen moves from left to right.*
- *If there is a power cut, or if you press ⏻/I or* ***MENU*** *while Auto Set Up is in progress, Auto Set Up will be interrupted; be sure to turn off the recorder power once and try again from step* ***1****.*


AUTO SET
PLEASE WAIT
0-----+----■----+-----+
[MENU] : EXIT

If both auto channel set and auto clock set have been performed successfully:

[1] Perform "Video Channel Set" on page 8.

[2] Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the **TV PROG.** button(s).
- If station names (ID — ☞ pg. 48) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
- If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 46 – 47.

[3] Perform "ShowView Setup" on page 10 to check if the Guide Program numbers have been set correctly.

If auto channel set has succeeded but auto clock set has not:

[1] Perform "Video Channel Set" on page 8.

[2] Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the **TV PROG.** button(s).
- If station names (ID — ☞ pg. 48) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
- If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 46 – 47.

[3] Perform "Clock Set" on page 49, then "ShowView Setup" on page 10 to check if the Guide Program numbers have been set correctly.

If both auto channel set and auto clock set have failed:

[1] Make sure the TV aerial cable is connected properly to the recorder and turn off the recorder power once, then turn the recorder power back on again.
- The Country Set display appears on the front display panel and/or on the screen; perform steps **2** and **4** on pages 4 – 5 again.

IMPORTANT

- Depending on the reception conditions, the station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, ShowView timer recording (☞ pg. 28) will not work correctly; be sure to check if the Guide Program numbers have been set correctly (☞ pg.10, "ShowView Setup").
- Since your video recorder memorizes all detected stations even if the reception condition is poor, some of those stored stations may produce a noisy picture. To delete those stations, ☞ "Delete A Channel" on page 46.

INFORMATION

Language for the on-screen display

Auto Set Up also selects the language automatically for the on-screen display depending on the Country setting you have made in step **2** on page 4 (unless you have selected BELGIUM or SUISSE), as shown below.

SUOMI → SUOMI
PORTUGAL → ENGLISH
DEUTSCHLAND → DEUTSCH
NORGE → NORSK
SVERIGE → SVENSKA
DANMARK → DANSK
OSTERREICH → DEUTSCH
ITALIA → ITALIANO
ESPAÑA → CASTELLANO
NEDERLAND → NEDERLANDS
GREECE → ENGLISH
OTHERS → ENGLISH

If you want to change the language setting manually, ☞ "Language" on page 7.

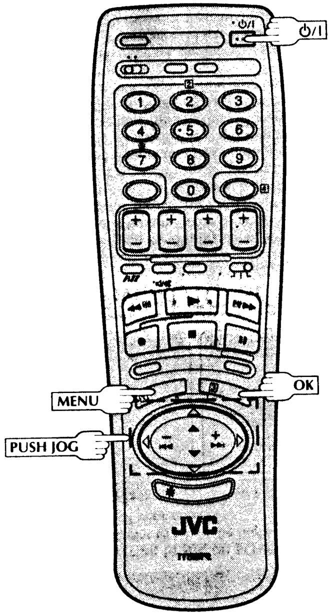
Just Clock

Your recorder is equipped with the Just Clock function which provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal. If you want to take advantage of this function, simply set it to "ON". ☞ "Just Clock" on page 49.

Language

- Be sure to set your Video Channel before performing Language setting (☞ pg. 8).
- Turn on the TV and select the VIDEO channel (or AV mode).

This recorder offers you the choice to view on-screen messages in 10 different languages. Though Auto Set Up selects the language automatically (☞ pg. 6), you can change the language setting manually using this procedure as required.



1 TURN ON THE RECORDER

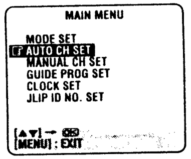
Press ⏻/I.

2 ACCESS MAIN MENU

Press **MENU** twice.

3 ACCESS COUNTRY SET SCREEN

Press **PUSH JOG**△▽ to move the highlight bar (pointer) to "AUTO CH SET", then press **OK**.



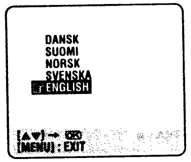
4 SELECT COUNTRY

Press **PUSH JOG**△▽ to move the highlight bar (pointer) to your country's name, then press **OK**. The Language Set screen appears.

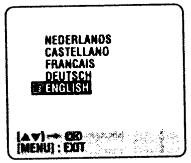
5 SELECT LANGUAGE

Press **PUSH JOG**△▽ to move the highlight bar (pointer) to the language of your choice.

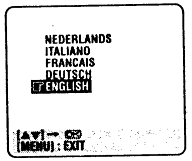
For HR-DD949EH



For HR-DD949EH



For HR-DD949E



* The on-screen display differs for the HR-DD949EH depending upon the country in which the product was purchased.

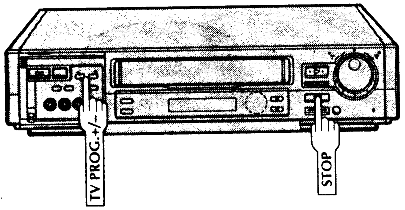
- You do not have to press **OK**; pressing **OK** starts Auto Channel Set.

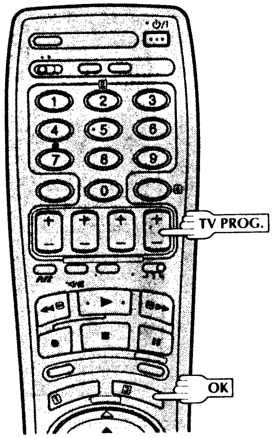
6 RETURN TO NORMAL SCREEN

Press **MENU.**

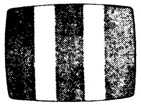
Video Channel Set

Video Channel (RF Output Channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.





TEST SIGNAL



The channel on which the screen to the left appear clearly in step **2** is your Video Channel.

To view picture signals from the video recorder, set your TV to the Video Channel.

If you have connected the video recorder to your TV via the provided RF cable only (RF connection) – Go to "With RF Connection" below.

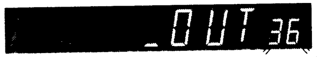
If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection) – Go to "With AV Connection" on next page.

IMPORTANT:
Before performing the following steps, make sure the recorder's power is off and there is no cassette inserted in the recorder.

With RF Connection

1 ACCESS VIDEO CHANNEL SET MODE

Hold down **STOP** on the recorder until the display panel shows the following.

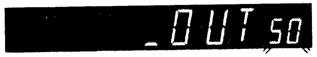


2 SET VIDEO CHANNEL

Set your TV to UHF channel 36.

- If the two vertical white bars appear clearly on the screen as shown in the illustration at bottom left, go to step **3**.
- If the two vertical white bars do not appear clearly, press **TV PROG.+** or – to set the video recorder to a vacant channel between 22 and 69 which is not occupied by any local station in your area.

(Ex.) If channel 50 is available in your area



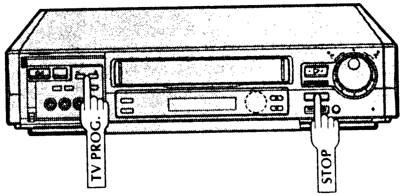
Then set your TV to UHF channel 50 and check if the two vertical white bars appear clearly on the screen; if so, go to step **3**. If not, re-set the video recorder to another vacant channel and try again.

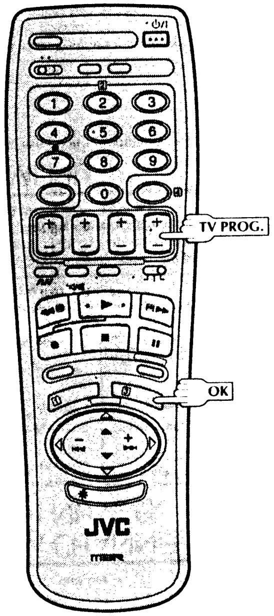
NOTES:

- *If you set the video recorder to a channel which is occupied by a local station or has neighbouring channels that are occupied by local stations, the picture reception quality will be affected and some interference noise will appear on the TV screen. Be sure to select a vacant channel which has no broadcast on neighbouring channels.*
- *If you cannot obtain the two vertical white bars clearly with any channel between 22 and 69, consult your JVC dealer.*

3 EXIT VIDEO CHANNEL SET MODE

Press **OK**.



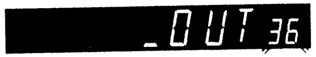


IMPORTANT:
Before performing the following steps, make sure the recorder's power is off and there is no cassette inserted in the recorder.

With AV Connection

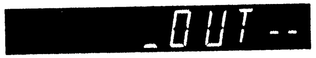
1 ACCESS VIDEO CHANNEL SET MODE

Hold down **STOP** on the recorder until the display panel shows the following.



2 SET VIDEO CHANNEL

Press **TV PROG.** – until the display panel shows "_OUT- -".



- Now the video channel is set to off.

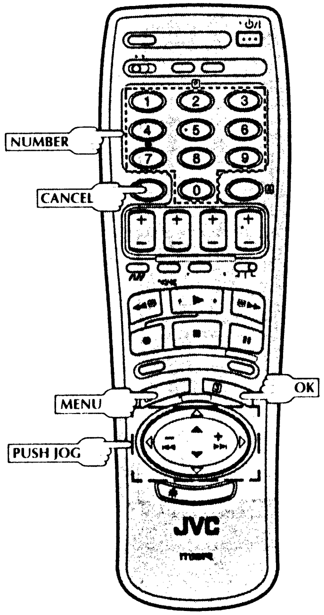
3 EXIT VIDEO CHANNEL SET MODE

Press **OK**.

To view picture signals from the video recorder, set your TV to its AV mode.

SHOWVIEW Setup

Turn on the TV and select the VIDEO channel (or AV mode).



With SHOWVIEW, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder is able to recognise.

NOTE:

"Guide Program (GUIDE PROG) Number" refers to the assigned TV station numbers, according to broadcast area, for SHOWVIEW timer recording.

IMPORTANT

Perform the following procedure after Auto Set Up on page 4 and/or the channel setting steps on pages 44 – 47, and after the Clock Set procedure on page 49.
After setting the Guide Program Numbers, the station names and channel positions may be incorrect if you stored or skipped channels. In this case, re-perform Guide Program Number setting.

Guide Program Number Set

1

MAKE LIST OF STORED STATION NAMES AND CHANNEL POSITIONS

(Ex.)

Channel position	Station name
1	ARD
2	ZDF
3	WDR

2

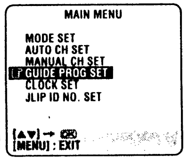
ACCESS MAIN MENU SCREEN

Press **MENU** twice.

3

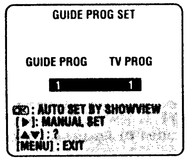
ACCESS GUIDE PROG SET SCREEN

Press **PUSH JOG** △▽ to move the highlight bar (pointer) to "GUIDE PROG SET", then press **OK**.
The Guide Prog. Set screen appears.


MAIN MENU

MODE SET
AUTO CH SET
MANUAL CH SET
☞ GUIDE PROG SET
CLOCK SET
JLIP ID NO. SET

[▲▼] → OK
[MENU] : EXIT


GUIDE PROG SET

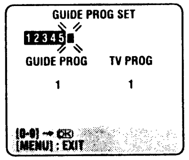
GUIDE PROG TV PROG
1 1

OK : AUTO SET BY SHOWVIEW
[▶]: MANUAL SET
[▲▼] : ?
[MENU] : EXIT

4

ENTER SHOWVIEW NUMBER

Press **OK**, and a cursor appears above "GUIDE PROG". Then, using the **NUMBER** keys, input the SHOWVIEW number (found in most TV listings) of a program scheduled to be broadcast on each station on the list from step **1**, starting at the top. If you enter the wrong number, press **CANCEL** to backspace and input the correct number.


GUIDE PROG SET
12345
GUIDE PROG TV PROG
1 1
[0-9] → OK
[MENU] : EXIT

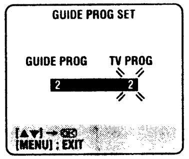
When entering a SHOWVIEW number for ZDF

5

CONFIRM CHANNEL POSITION NUMBER

Press **OK** and the display under "TV PROG" begins blinking.

If the blinking number under "TV PROG" agrees with the channel position . . .
. . . press **OK**.
If the numbers do not agree . . .
. . . input the channel position using **PUSH JOG**△▽ or the **NUMBER** keys, then press **OK**.


GUIDE PROG SET
GUIDE PROG TV PROG
2 2
[▲▼] → OK
[MENU] : EXIT

- If you input the SHOWVIEW number of a program that has already aired, "ERROR" appears on screen for a few seconds. Input the correct SHOWVIEW number.
- Repeat steps **4** and **5** as necessary.

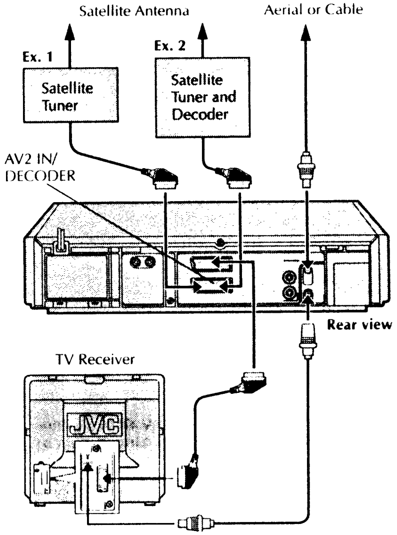
6

CLOSE MENU

Press **MENU** and selection is complete.

If you already know the Guide Program number for a station . . .
1– After step **3**, press **PUSH JOG** ▷.
 - The GUIDE PROG number begins blinking.
2– Enter the Guide Program number using the **NUMBER** keys or **PUSH JOG**△▽, then press **PUSH JOG** ▷ .
 - The TV PROG number begins blinking.
3– Enter the channel position using the **NUMBER** keys or **PUSH JOG**△▽, then press **PUSH JOG** ◁ .
 - Repeat **2** and **3** as necessary.
4– Press **MENU**.

When Using A Satellite Tuner



Preparation
1– Connect the satellite tuner to the AV2 IN/DECODER connector on the rear of your recorder.
2– Set "AV2 SELECT" to "AV2" (☞ pg. 34).

To Record Satellite Broadcasts . . .
1– Select the appropriate channel on the satellite tuner.
2– Press **NUMBER** key "0" to set your recorder's input mode to "AUX2".
3– Start recording (☞ pg. 21, steps **3 – 6**).

To Record Satellite Broadcasts Using SHOWVIEW Timer Recording . . .
1– Perform Guide Program Number setting.
 - In step **5** in the left column, press **NUMBER** key "0" to set "TV PROG" to "AUX2".
2– Perform SHOWVIEW Timer Recording (☞ pg. 28).

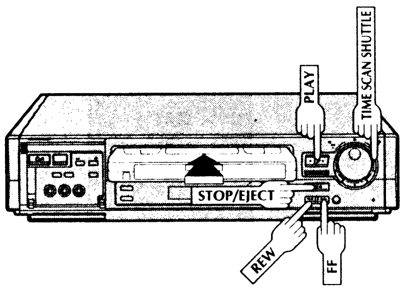
To Record Satellite Broadcasts Using Regular Timer Recording . . .
1– In step **6** on page 31, press **TV PROG. +/–** to set the channel position to "AUX2".

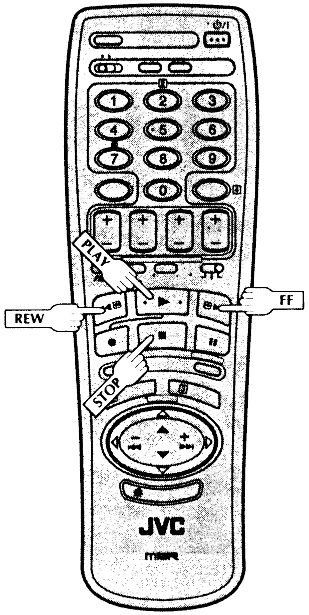
NOTE:

When timer-recording a satellite programme, first set the satellite tuner to the appropriate channel before the selected programme begins and then set the satellite tuner's timer. If your satellite tuner does not have a timer, leave it switched on.

Basic Playback

Turn on the TV and select the VIDEO channel (or AV mode).





The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.

1 LOAD A CASSETTE

Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is point toward the recorder. Don't apply too much pressure when inserting.

- The recorder power comes on automatically and the counter is reset to 0:00:00.
- If the record safety tab has been removed, playback begins automatically.

2 FIND PROGRAMME START POINT

If the tape is advanced past the start point, press **REW** or turn the **TIME SCAN SHUTTLE** ring to the left. To go forward, press **FF** or turn the **TIME SCAN SHUTTLE** ring to the right.

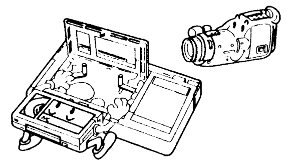
3 START PLAYBACK

Press **PLAY**. "BEST" appears blinking in the recorder's display panel during automatic tracking. (☞ pg. 22)

4 STOP PLAYBACK

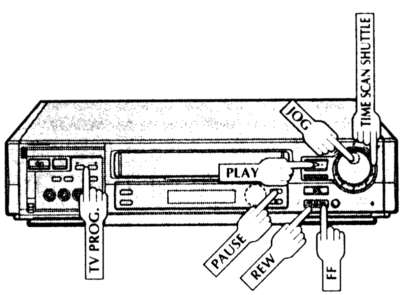
Press **STOP** on the remote or **STOP/EJECT** on the recorder's front panel. Then press **STOP/EJECT** to remove the cassette.

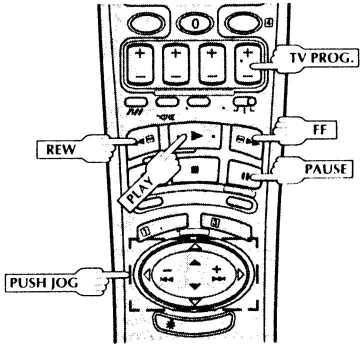
Usable cassettes



- Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.
- This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

Playback Features





High-Speed (Turbo) Search

1 ACTIVATE HIGH-SPEED SEARCH

During playback or still picture, press **FF** for forward high-speed search, or **REW** for reverse high-speed search.

To resume normal playback, press **PLAY**.

NOTES:

- *For short searches, press and hold **FF** or **REW** for over 2 seconds. When released, normal playback resumes.*
- *Picture may not appear during search with an LP-recorded tape.*
- *In the search, still, or frame by frame playback mode, the picture may be distorted, and there may be a loss of colour.*

Take advantage of special functions possible with the recorder's controls or the remote control.

Still Picture/Frame-By-Frame Playback

1 PAUSE DURING PLAYBACK

Press **PAUSE.** If there is vertical jitter, use the **TV PROG.** buttons to correct the picture.

- During still picture, the sound from the previous 3 seconds (approx.) will be played back repeatedly (provided there was at least 6 seconds of normal playback prior to engaging the still picture mode). However, the TIME SCAN indicator will not light.
- "TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard. (☞ pg. 20)

2 ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the **JOG** dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.

OR

Press **PAUSE**.

OR

Press **PUSH JOG** ◁ or ▷.

To resume normal playback, press **PLAY**.

Slow Motion

1 ACTIVATE SLOW-MOTION PLAYBACK

Turn the **TIME SCAN SHUTTLE** ring to the left or press **PUSH JOG** ◁ during playback to decrease speed in the forward direction. To play in reverse slow-motion (and in reverse play mode), continue to turn the **TIME SCAN SHUTTLE** ring to the left or press **PUSH JOG** ◁ after selecting all the forward direction slow-motion modes.

OR

During still picture, turn the **TIME SCAN SHUTTLE** ring to the right for forward slow motion, or to the left for reverse slow motion.

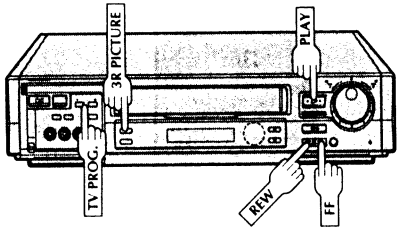
OR

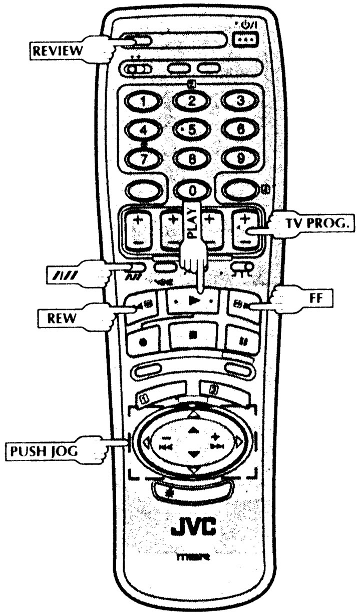
During still picture, press and hold **PAUSE** for 2 seconds, then release. Press and release again to return to still picture.

OR

During still picture, press and hold **PUSH JOG** ◁ or ▷. Release to return to still picture.

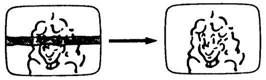
To resume normal playback, press **PLAY**.





Manual Tracking

Your video recorder is equipped with automatic tracking control. During playback, you can override this and adjust the tracking manually by pressing the **TV PROG.** buttons.



1 OVERRIDE AUTOMATIC TRACKING

Press **SP/LP (/I//)** on the remote to engage manual tracking.

2 ADJUST TRACKING MANUALLY

Press **TV PROG.** + or – to adjust tracking.

3 RETURN TO AUTOMATIC TRACKING

Press **SP/LP (/I//)** on the remote to re-engage automatic tracking.

NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

3R Picture

3R(= Resolution and Response Recovery technology) maximises sense of resolution and sharpens image edges to make playback picture look better focused.

1 ACTIVATE 3R PICTURE

Press **3R PICTURE**. The button will light.

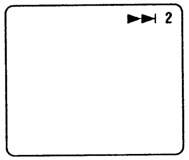
- To turn off 3R Picture, press **3R PICTURE** again so that the light goes off.
- Normally it is recommendable to keep 3R Picture ON (with the button lit).
- Depending on the type of tape used, picture quality may be better with 3R Picture set to off.
- If you use this recorder as the player for editing, be sure to turn off 3R Picture before starting.
- The setting will remain effective even though you turn on/off the recorder.

Information On Colour System

You can also record SECAM signals, or play back a MESECAM tape on this recorder. When a MESECAM tape is played back, "MESECAM" appears on the screen for about 5 seconds. MESECAM is the designation for tapes with SECAM signals that have been recorded on a MESECAM-compatible PAL video recorder.

Index Search

Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.



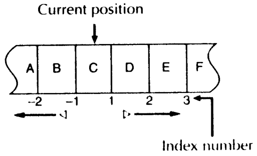
NOTE:

Before starting, make sure the recorder is in the Stop mode.

1 ACTIVATE INDEX SEARCH

Press **PUSH JOG** ◁ or ▷ (|◄◄ or ►►|). "|◄◄ 1" or "►►| 1" is displayed on screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press **PUSH JOG** ◁ or ▷ repeatedly until the correct index number is displayed.
  Ex.: To locate the beginning of B from the current position, press **PUSH JOG** ◁ twice.
  To locate the beginning of D from the current position, press **PUSH JOG** ▷ once.



- When the specified index code is located, playback begins automatically.

Instant ReView

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last timer-recorded programme. If you have several programmes recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the recorder is off and that the Timer mode is disengaged.

1 ACTIVATE INSTANT REVIEW

Press **REVIEW**. The recorder power comes on and the recorder searches for the index code indicating the start of the last timer-recorded programme. Once it's found, playback begins automatically.
The front display panel tells you how many programmes have been recorded. If you have, for example, 3 programmes, "REVIEW" and "3" appear and blink. To watch the first of the 3 programmes, press **REVIEW** three times. The recorder searches and begins playback automatically. You can access a programme as far as 9 index codes away from the current tape position.

NOTE:

Instant ReView is not possible while the recorder is in the Timer mode.

NTSC Playback

Your video recorder is equipped with NTSC circuitry that can play back NTSC tapes.

1 LOAD A CASSETTE

Insert a cassette recorded in NTSC.

2 START PLAYBACK

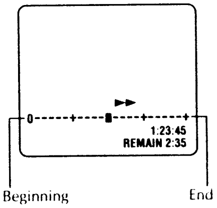
Press **PLAY**.

- "NTSC" appears on the screen for about 5 seconds.
- Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.
- The picture may roll up and down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)
- The counter and tape remaining time readings will be incorrect.
- During search, still, or frame-by-frame playback, the picture will be distorted, and there may be a loss of colour.
- Depending on the type of TV, the top and bottom portions of superimposed displays may be cut off during NTSC playback.

Tape Position Indicator

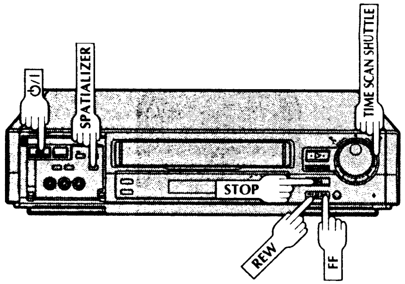
The tape position indicator appears on screen when, from the Stop mode, you press **FF**, **REW** or perform an Index Search. The position of "■" in relation to "0" (beginning) or "+" (end) shows you where you are on the tape.

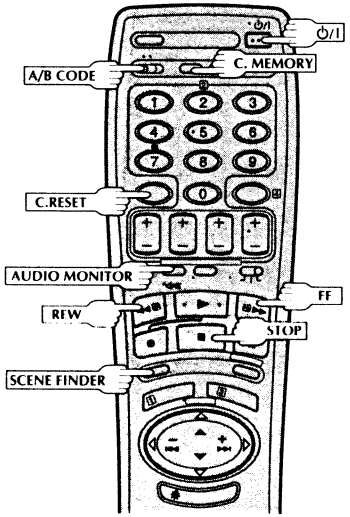
"O.S.D." (☞ pg. 24) must be set to "ON", or the indicator will not appear.



NOTE:

Depending on the type of tape used, there may be times when the indication is not correct.





Spatializer®

This feature expands sound field when you play back any stereo source or view a stereo programme while recording it.
*Spatializer® has no effect on recording quality.

1 ACTIVATE SPATIALIZER®

Press **SPATIALIZER**; the current setting will be displayed on the screen for about 5 seconds. Pressing **SPATIALIZER** while the screen shows the display changes the setting.

- To view a stereo programme such as movies or music, select "SPATIALIZER ▷ ◁" to create more spacious sound.
- To view a monaural programme, select "SPATIALIZER→ST" which simulates a stereo effect.
- Select "SPATIALIZER OFF" to turn off Spatializer® if the sound becomes unnatural with either "SPATIALIZER ▷ ◁" or "SPATIALIZER→ST" selected.
- If your TV is equipped with 3D-PHONIC and if you use both Spatializer® and 3D-PHONIC at the same time, the sound may become unnatural; set either function to "OFF".
- The setting will remain effective even though you turn on/off the recorder.

NOTES:

- *Spatializer® is effective only with a stereo TV.*
- *The setting cannot be changed during search, still, frame-by-frame playback or slow motion mode.*
- *When this recorder is used as the player for editing, the recorded audio will correspond to the Spatializer® setting.*

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

During Playback
Pressing **AUDIO MONITOR** on the remote control changes the soundtrack being played back as follows:

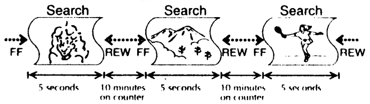
TRACK		USE
Recorder's Front Panel	On-Screen Display	
L + R	HI FI L ▷ ◁ R	For Hi-Fi stereo tapes
L	HI FI L ▷	For main audio of Bilingual tapes
R	HI FI ◁ R	For sub audio of Bilingual tapes
NORM	NORM	For audio-dubbed tapes
L + R + NORM	HI FI NORM	For audio-dubbed tapes

NOTES:

- *"L + R" should normally be selected. In this mode, Hi-Fi stereo tapes are played back in stereo, and the normal audio track is played back automatically for tapes with only normal audio.*
- *For instructions on recording stereo and bilingual programmes, refer to page 26.*
- *"O.S.D." must be set to "ON" or the on-screen displays will not appear (☞ pg. 24).*

Scene Finder

This function helps you check contents of unlabeled recorded tapes at the touch of a single button.



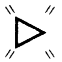
NOTE:

Scene Finder cannot be used when the recorder is in the Record mode.

1 ACTIVATE SCENE FINDER

Press **SCENE FINDER**. The recorder starts forward search for 5 seconds and then fast-forwards 10 minutes on the counter. This cycle is repeated until the end of the tape is reached.

- To start Scene Finder in the reverse direction, press **SCENE FINDER** and then turn the **TIME SCAN SHUTTLE** ring to the left (or press the **REW** button) within 2 seconds. This cycle is repeated until the beginning of the tape.
- During Scene Finder, the following indications appear on the display panel:



2 STOP SCENE FINDER

Press **STOP**.

NOTES:

- *During Scene Finder search, you can also hear the tape sound. During fast forward or rewind, you hear the current TV sound instead.*
- *During Scene Finder, the sound can be heard regardless of "TIME SCAN AUDIO" setting. ☞ pg. 20.*
- *Scene Finder does not function during Index Search.*

Next Function Memory

You can set your recorder's power to go off automatically after the tape is fully rewound. Before starting, make sure the recorder is in the Stop mode.
For Automatic Power Off After Tape Rewind . . .
. . . press **REW**, then press ⏻/I within 2 seconds.

NOTE:

*If you want the power to be turned off automatically when the counter reads "0:00:00" (instead of at the beginning of the tape), press **C.MEMORY** so that the "M" mark appears before pressing **REW**.*

Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to the remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1 REMOVE POWER SUPPLY

Unplug the mains power cord from the mains outlet.

2 SET A/B CODE SWITCH

Set to B.

3 RE-SUPPLY POWER

Plug the mains power cord back into the mains outlet.

4 TURN THE RECORDER ON

Press ⏻/I on the remote control. The recorder will now only respond to B code signals.

NOTE:

Some TV sets may malfunction in response to the B mode. If this happens, switch back to the A mode.

Counter Memory

Returns to the counter reading of "0:00:00" to conveniently find a specific place on the tape automatically.

1 SET COUNTER MEMORY

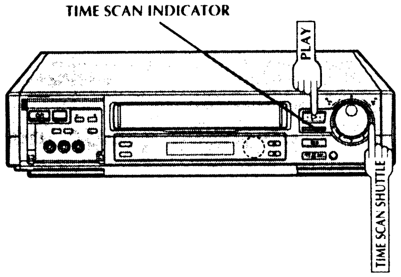
Press **C. RESET** during playback at a point you wish to locate later. The counter reads "0:00:00". Then press **C.MEMORY**, and "M" appears in front of the counter digits.

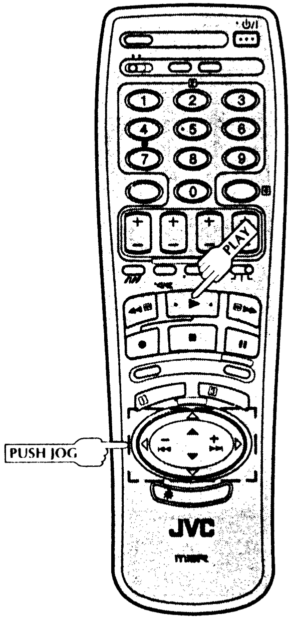
2 ACTIVATE COUNTER MEMORY

When you wish to return to the designated point, press **STOP** and then **REW** or **FF**.

- The tape rewinds or fast-forwards and stops at about 0:00:00 automatically.
- To cancel Counter Memory, press **C.MEMORY** again.

TimeScan





Your recorder is equipped with the TimeScan function. TimeScan allows noise free pictures to be displayed on your TV screen in the forward and reverse search modes. Audio will be played back at normal speed during any of the TimeScan modes (☞ pg. 19). TimeScan allows you to view a program in search mode while listening to the audio.

NOTES:

- *"TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard in TimeScan mode. (☞ pg. 19)*
- *The audio will not synchronize with the video in TimeScan modes.*
- *In Pause mode 3 seconds (approx.) of audio will be played back repeatedly. (☞ pg. 13)*
- *In TimeScan search modes some of the audio information will not be played so that the audio can keep up with the video.*

Audio signal during TimeScan

Playback tape ① ② ③ ④ ⑤

Sound of ①, ③ and ⑤ is heard.
Sound of ② and ④ is not heard.
Output audio signal is normal (monaural) sound.

Variable-Speed Search/ Reverse Play

1

ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the recorder's **TIME SCAN SHUTTLE** ring. It remains at that position even after you release it. Each time it passes a click position, the playback speed changes.
(Refer to the chart on pg 19 for playback speeds).

OR

During playback, press **PUSH JOG** ◁ or ▷.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.
(Refer to the chart on pg 19 for playback speeds).

To resume normal playback, press **PLAY**.

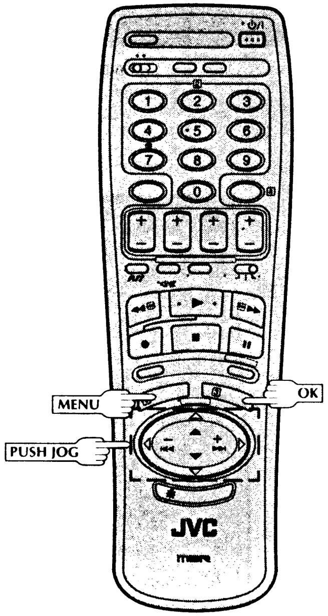
TimeScan

Names of special-effects playback	Reverse							*Still	Forward							
	Search				Play	Slow-Motion			Slow-Motion		Play	Search				
Speed SP	-9x	-7x	-5x	-3x	-1x	-1/6x	-1/18x	0	1/18x	1/6x	1x	2x	3x	5x	7x	9x
Speed LP		-7x		-3x		-1/6x	-1/18x	0	1/18x	1/6x	1x	2x		5x		9x
Audio output	Audio is output.					Audio is not output.		Audio is output.	Audio is not output.		Audio is output.					

* Still mode cannot be engaged using the remote control's **PUSH JOG** button. In the Still mode, the TIME SCAN indicator does not light even though you can hear TimeScan audio.

- The VCR's TimeScan indicator lights during TimeScan.
- The speed is shown during TimeScan in the upper right corner of the TV screen for approx. 5 seconds. (The display may be distorted.)
- To resume normal playback, press **PLAY**.
- When using the recorder's **TIME SCAN SHUTTLE** ring, the playback speed may not change depending on how far it is turned.
- Picture may be distorted at the position where the recording speed is switched.
- The picture may be noisy or there may be a loss of colour when you change the playback speed. (More noise will appear with LP recordings.)
- Noise may appear or the upper part of the picture may be distorted during still, frame by frame playback, 2x search of LP recordings, or depending on the tape being used.
- Picture may appear distorted in comparison to normal playback.
- In TimeScan mode there will be a time lag between the video and the audio and noise may appear in the audio signal.
- TimeScan sound quality will differ in comparison to normal playback.
- When the playback direction is reversed, it takes approximately 6 seconds until sound is heard.
- TimeScan does not work with NTSC playback. Picture will be monochrome with an LP-recorded MESECAM tape during TimeScan.

If you don't want to hear TimeScan audio, set "TIME SCAN AUDIO" to "OFF" (☞ pg. 20).



TimeScan Audio

The audio output can be set ON/OFF during TimeScan. Select ON/OFF as required.

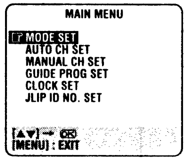
* The default setting is "ON".

1 ACCESS MAIN MENU SCREEN

Press **MENU** twice.

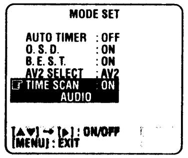
2 ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing **PUSH JOG** △▽, then press **OK**.


MAIN MENU
MODE SET
AUTO CH SET
MANUAL CH SET
GUIDE PROG SET
CLOCK SET
JLIP ID NO. SET
[▲▼] → OK
[MENU] : EXIT

3 SELECT MODE

Move the highlight (pointer) to "TIME SCAN AUDIO" by pressing **PUSH JOG** △▽, then press **PUSH JOG** ▷ to select "ON" or "OFF".

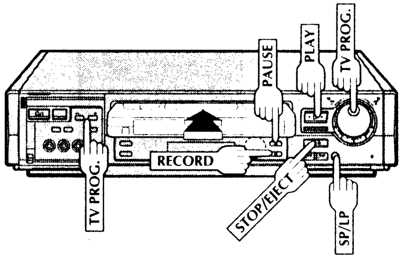

MODE SET
AUTO TIMER : OFF
O. S. D. : ON
B. E. S. T. : ON
AV2 SELECT : AV2
TIME SCAN AUDIO : ON
[▲▼] → [▶] : ON/OFF
[MENU] : EXIT

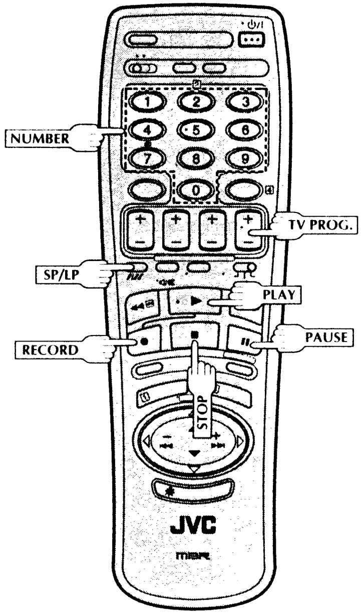
4 RETURN TO NORMAL SCREEN

Press **MENU**.

Basic Recording

Turn on the TV and select the VIDEO channel (or AV mode).





TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. You can "capture" a TV programme using your video recorder.

1 LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The counter is reset to 0:00:00 and the recorder power comes on automatically.

2 CHOOSE A PROGRAMME

Press **TV PROG. +/–** or the **NUMBER** keys to select the channel you wish to record.

- The **TV PROG.** dial can also be used to select a channel.

3 SET TAPE SPEED

Press **SP/LP (** ///// **)**. Check the SP/LP indicator on the recorder display panel to confirm the selected tape speed.

4 START RECORDING

Press and hold **RECORD** and **PLAY** on the remote control, or press **RECORD** on the recorder.

B.E.S.T. takes place at the beginning of both the first SP and the first LP recording after inserting the cassette (☞ pg. 22).

5 PAUSE/RESUME RECORDING

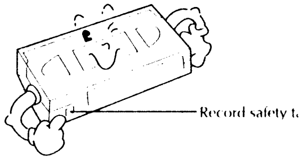
Press **PAUSE**. Press **PLAY** to resume recording.

6 STOP RECORDING

Press **STOP** on the remote control or **STOP/EJECT** on the recorder. Then press **STOP/EJECT** to remove the cassette.

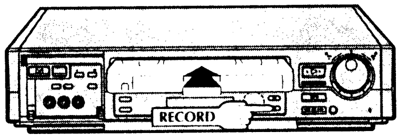
Accidental erasure prevention

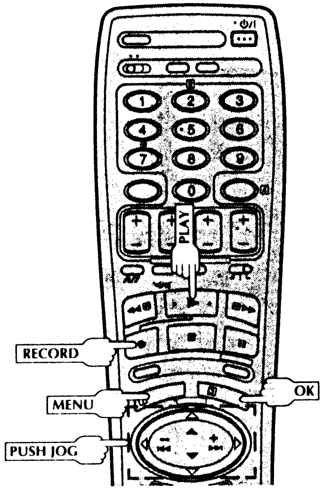
- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



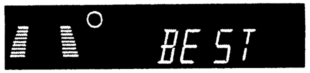
B.E.S.T. Picture System

Turn on the TV and select the VIDEO channel (or AV mode).





Display Panel Indication



As the tape check progresses, the "- -" marks on the display panel increase upward. Once the "BEST" indicator starts blinking, the check is complete.

The B.E.S.T. (Biconditional Equalised Signal Tracking) system checks the condition of the tape in use during recording and playback, and compensates to provide the highest-possible recording and playback pictures. The default setting for both recording and playback is "ON".

Recording

1 LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

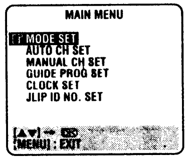
- The recorder power comes on automatically.

2 ACCESS MAIN MENU SCREEN

Press **MENU** twice.

3 ACCESS MODE SET SCREEN

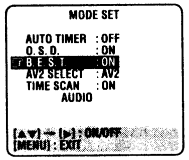
Move the highlight bar (pointer) to "MODE SET" by pressing **PUSH JOG** △▽, then press **OK**.



```
MAIN MENU

☞MODE SET
 AUTO CH SET
 MANUAL CH SET
 GUIDE PROG SET
 CLOCK SET
 JLIP ID NO. SET

[▲▼] → OK
[MENU] : EXIT
```

4 CONFIRM B.E.S.T. STATUS

The default setting is "ON". If this is the case, go to step **5**. If not, press **PUSH JOG**▽ to move the highlight bar (pointer) to "B.E.S.T.", then press **PUSH JOG** ▷ to set to "ON".



```
MODE SET

 AUTO TIMER  : OFF
 O. S. D.    : ON
☞B. E. S. T. : ON
 AV2 SELECT  : AV2
 TIME SCAN   : ON
       AUDIO

[▲▼] → [▶] : ON/OFF
[MENU] : EXIT
```

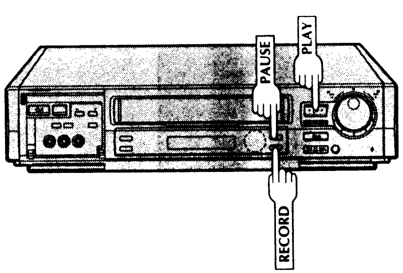
5 RETURN TO NORMAL SCREEN

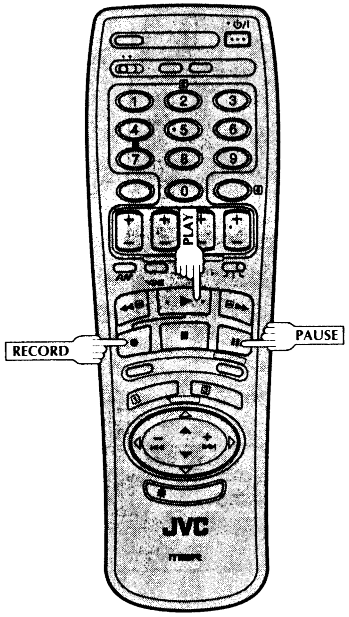
Press **MENU**.

6 START RECORDING

Press and hold **RECORD** and **PLAY** on the remote, or press **RECORD** on the recorder.

- The recorder spends approximately 7 seconds assessing the condition of the tape, then begins recording.
- When the "BEST" indicator begins blinking, that means adjustment is complete.
- Pressing the recorder's **RECORD** button while "BEST" is displayed does not start Instant Timer Recording (☞ pg. 27).





NOTES:

- *The B.E.S.T. system works for both SP and LP modes only after a tape has been inserted and the Record mode is first initiated. It does not work during recording.*
- *In the case of timer recording, the B.E.S.T. system works before recording is initiated.*
- *Once the cassette is ejected, the B.E.S.T. data is cancelled. The next time the cassette is used for recording, B.E.S.T. is re-performed.*

ATTENTION:

Since the B.E.S.T. system works before recording actually starts, there is a delay of approximately 7 seconds after ***RECORD*** *and* ***PLAY*** *on the remote are pressed, or* ***RECORD*** *on the recorder is pressed. To make sure you record the desired scene or programme in its entirety, first perform the following steps:*

1) *Press and hold* ***PAUSE*** *and* ***RECORD*** *to engage the RECORD PAUSE mode.*
   - *The recorder then automatically checks the condition of the tape and, after approximately 7 seconds, re-enters RECORD PAUSE.*

2) *Press* ***PLAY*** *to start recording.*
   - *If you want to bypass the B.E.S.T. system and begin recording immediately, set "B.E.S.T." to "OFF" in step* ***4*** *on page 22.*

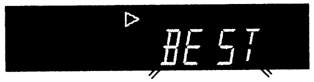
Playback

The recorder assesses the quality of the tape once you initiate playback.

When watching a tape recorded with "B.E.S.T." set to "ON", it is recommended that you leave B.E.S.T. on during playback as well.

1 START PLAYBACK

Press **PLAY**.



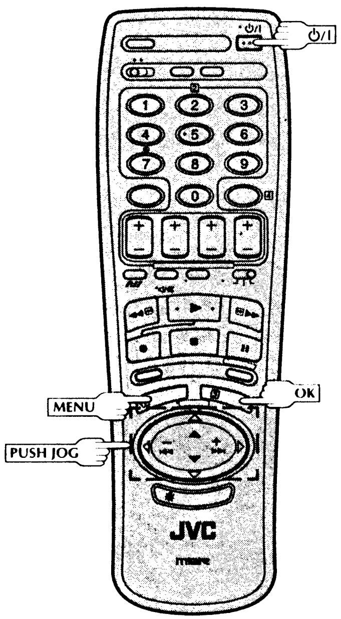
- The recorder adjusts the playback picture quality based on the quality of the tape in use.
- B.E.S.T. is active during Auto Tracking. "BEST" appears blinking on the recorder's display panel.

NOTES:

- *When watching a rental tape or one recorded on another video recorder, or when using this recorder as the player for editing, set B.E.S.T. to your preference by performing steps* ***2*** *through* ***5*** *on page 22.*
- *"BEST" only appears at the beginning of automatic tracking. Even though it doesn't appear after that, the B.E.S.T. function is operative.*

On-Screen Displays

Turn on the TV and select the VIDEO channel (or AV mode).



You can choose whether or not to have various operational indicators appear on screen, by setting this function ON or OFF. Messages appear in the selected language (☞ pg. 6 or 7).

1 TURN ON THE RECORDER

Press ⏻/I.

2 ACCESS MAIN MENU SCREEN

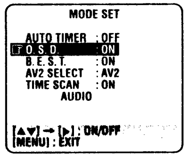
Press **MENU** twice.

3 ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing **PUSH JOG** ∆∇, then press **OK**.

4 ENABLE/DISABLE ON-SCREEN DISPLAY

The default setting is "ON", so if you want on-screen displays, leave the setting as it is and go to step **5**. If you don't want the displays to appear, press **PUSH JOG** ∧∇ to move the highlight bar (pointer) to "O.S.D." and press **PUSH JOG** ▷ to set "O.S.D." to "OFF".



MODE SET

AUTO TIMER : OFF
O.S.D. : ON
B.E.S.T. : ON
AV2 SELECT : AV2
TIME SCAN : ON
AUDIO

[▲▼] → [▶] : ON/OFF
[MENU] : EXIT

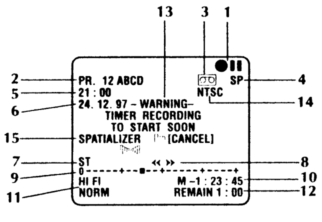
5 RETURN TO NORMAL

Press **MENU**.

NOTES:

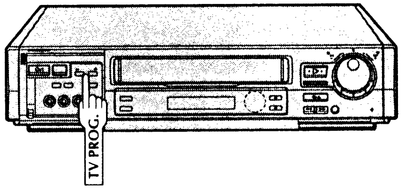
- *When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF." before starting.*
- *During playback, the operation mode indicators may be disturbed depending on the type of tape being used.*

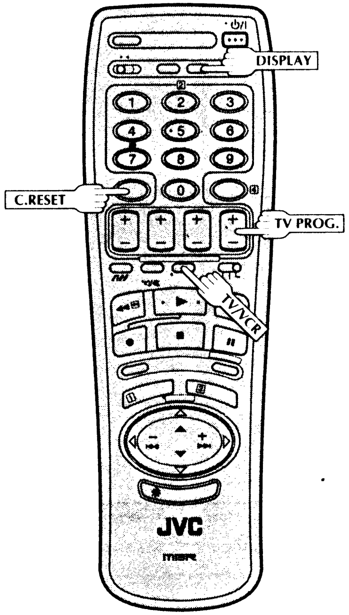
The superimposed indication on the TV screen tells you what the recorder is doing.



1– Operation mode indicators
2– Channel position number and station name/Aux. indicator (AUX1, AUX2 or F-AUX)
3– Cassette loaded mark
4– Tape speed SP/LP/EP (EP is for NTSC playback only)
5– Clock display
6– Current day/month/year
7– Type of Broadcast (☞ pg. 26)
8– Tape direction
9– Tape position indicator (☞ pg. 15)
10– Counter display (including Counter Memory indicator)
11– Audio mode display (☞ pg. 16)
12– Tape remaining time indicator (☞ pg. 25)
13– Timer warning display (☞ pg. 33)
14– NTSC/MESECAM display (☞ pg. 14, 15)
15– Spatializer® indicator (☞ pg. 16)

Recording Features





Record One Programme While Watching Another

If your recorder is connected to the TV via AV connection, . . .
. . . press **TV/VCR**. The recorder's VCR indicator and the TV broadcast being recorded disappear.

1 SELECT CHANNEL TO WATCH

Once recording is in progress, all you need to do is to set the channel controls on the TV for the station you wish to view.

- The programme selected with the TV's channel controls appears on the TV screen while the one selected with the recorder's **TV PROG.** buttons is recorded on the tape.
- If a decoder is connected to the recorder (☞ pg. 41), you can select a scrambled channel as well with the TV channel controls.

Elapsed Recording Time Indication

You can check the exact time of a recording.

1 SET COUNTER DISPLAY

Press **DISPLAY** until a counter reading appears on the dispay panel.

2 RESET COUNTER

Press **C. RESET** before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs.

Tape Remaining Time

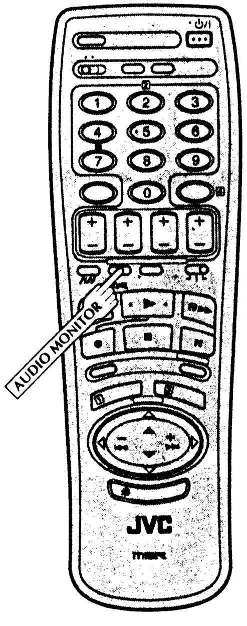
1 DISPLAY REMAINING TIME

Press **DISPLAY** until the time remaining on the tape appears.

- By pressing the **DISPLAY** button, you can change the display to show the counter reading, channel position*, clock time or tape remaining time.
  ** channel position is not displayed during playback.*

NOTE:

Depending on the type of tape used, there may be times when the tape remaining time reading may not appear right away, or is not correct. "- - : - -" may sometimes appear, or the display may blink on occasion.



Receiving Stereo And Bilingual Programmes

Your recorder is equipped with a Sound-Multiplex decoder (A2) and, if you own the HR-DD949EH, a Digital stereo sound decoder (NICAM) as well, making reception of stereo and bilingual broadcasts possible.

When the channel is changed, the type of broadcast being received will be displayed on the TV screen for a few seconds.

Type of Broadcast Being Received	On-screen Display
A2 Stereo	ST
A2 Bilingual	BIL
Regular Monaural	(none)
*NICAM Stereo	ST NICAM
*NICAM Bilingual	BIL NICAM
*NICAM Monaural	NICAM

*Available with HR-DD949EH only.

- To listen to a stereo programme, press **AUDIO MONITOR** until "L" and "R" appear on the front display panel.
- To listen to a bilingual programme, press **AUDIO MONITOR** until either "L" or "R" appears on the front display panel (as required).
- To listen to the Standard (regular monaural) audio while receiving a NICAM broadcast, press **AUDIO MONITOR** until "NORM" appears on the front display panel. (HR-DD949EH only)

NOTE:

"O.S.D." must be set to "ON" or the on-screen displays will not appear (☞ pg. 24).

To Record Stereo And Bilingual Programmes (A2)

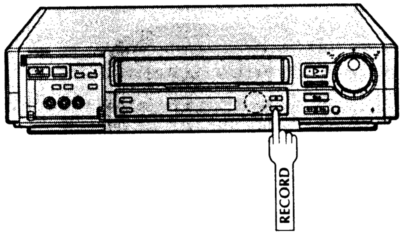
- Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound).
- Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

NOTES:

- *If the quality of stereo sound being received is poor, the broadcast will be received in monaural with better quality.*
- *Before playing back a programme recorded in stereo, or a bilingual programme, refer to "Soundtrack Selection" (☞ pg. 16).*

To Record NICAM Stereo And Bilingual Programmes (HR-DD949EH only)

- The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.



Instant Timer Recording (ITR)

This easy method lets you record for from 30 minutes to 6 hours (selectable in 30-min. increments), and shuts the recorder off after recording is finished.

1 START RECORDING

Press **RECORD** on the recorder.

2 ENGAGE ITR MODE

Press **RECORD** again. "O" blinks and 0:30 appears on the front display panel.

3 SET RECORDING DURATION

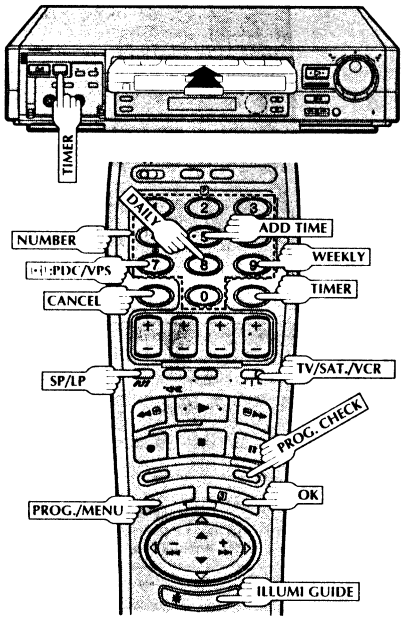
If you want to record for more than 30 minutes, press **RECORD** to extend the time. Each press extends recording time by 30 minutes.

NOTE:

*You can only perform ITR using the **RECORD** button on the recorder's front panel.*

SHOWVIEW Timer Recording

Before performing ShowView timer recording:
- Be sure to read "ShowView Setup" (☞ pg. 10).
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



When Using The Illumi-Guide Feature
- Buttons light or blink on the remote control for approximately 10 seconds. If the button or buttons extinguish during timer programming, press **ILLUMI GUIDE** and the button or buttons previously lit or blinking come back on. If the button or buttons do not re-light or start blinking again, press **MENU** and re-perform the timer programming procedure from the beginning.
- If for some reason the remote control's signal is not received by the video recorder, press **MENU** and re-perform the timer programming procedure from the beginning.

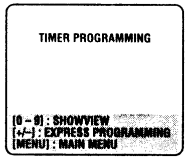
During ShowView and regular timer programming, the Illumi-Guide feature tells you which button on the remote control must be pressed next by lighting it up. To use this feature, with the **TV/SAT./VCR** switch set to "VCR", press **ILLUMI GUIDE** before performing step **1**. (**PROG.**, **REW**, **PLAY**, **FF** light up at this time.)

If you aren't going to use the Illumi-Guide feature, go directly to step **1**.

1

ACCESS TIMER PROGRAMMING SCREEN

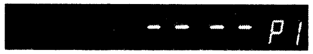
Press **PROG**.



TIMER PROGRAMMING

[0 – 9] : SHOWVIEW
[+/–] : EXPRESS PROGRAMMING
[MENU] : MAIN MENU

The front display panel looks like this:

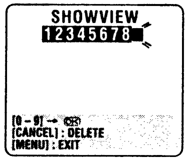


- If you are using the Illumi-Guide feature, the following buttons will light up: **NUMBER** keys (0–9), **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–**, **MENU** and **CANCEL**.

2

ENTER SHOWVIEW NUMBER

Press the **NUMBER** keys to enter the ShowView number of a programme you wish to record.

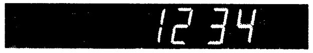


SHOWVIEW
12345678

[0 – 9] → OK
[CANCEL] : DELETE
[MENU] : EXIT

- If you make a mistake, press **CANCEL** to backspace and then input the correct number.

The ShowView number you enter appears on the front display panel:



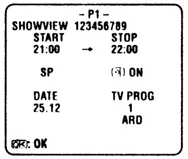
The display panel can only show 4 digits at a time.

- If you are using the Illumi-Guide feature, **OK** blinks when the following buttons are lit: **NUMBER** keys (0–9), **CANCEL** and **MENU**.

3

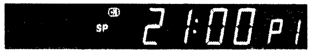
ACCESS SHOWVIEW PROGRAM SCREEN

Press **OK**, and the ShowView Program screen appears (if you're just starting out, "P1" appears).



– P1 –
SHOWVIEW 123456789
START 21:00 → STOP 22:00
SP
ON
DATE 25.12
TV PROG 1 ARD
OK: OK

The display panel shows the programme start time. Pressing **PROG. CHECK** changes the display to the programme stop time, then the date and channel position.



IMPORTANT
Be sure to confirm the setting of PDC/VPS recording.
- If " ON" is displayed on the screen or " " is lit on the display panel, PDC/VPS is set to ON.
- If " OFF" is displayed on the screen or " " is not lit on the display panel, PDC/VPS is set to OFF.

To change the setting, press : **PDC/VPS** (**NUMBER** key "7").
☞ "PDC/VPS Recording" on page 33.

- Make sure the channel position number you wish to record is displayed; if not, see "ShowView Setup" on page 10 and set the Guide Program number for that ShowView number correctly.
- If the number you entered is invalid, "ERROR" appears on the screen and "Err" appears on the display panel. Press **CANCEL** to backspace and input a valid ShowView number.
- If "ERROR=GUIDE PROG" appears on the screen, see "ATTENTION – Regarding Guide Program Number Set" in the right column.
- If you are using the Illumi-Guide feature, **OK** blinks.

4

SET TAPE SPEED

Press **SP/LP (////)** to set the tape speed.

5

RETURN TO NORMAL SCREEN

Press **OK**.

- Repeat steps **1** – **5** for each additional programme.

6

ENGAGE RECORDER'S TIMER MODE

Press **TIMER**. The recorder turns off automatically.

NOTE:

To Delay The Stop Time . . .
. . . press **ADD TIME** (**NUMBER** Key "5") after pressing **OK** in step **3**. Each time you press, the Stop time is delayed by 5 minutes (meaning that 5 minutes of recording time is added). You can easily compensate for anticipated programme schedule delays this way.

To Timer-Record Weekly Or Daily Serials . . .
. . . after pressing **OK** in step 3, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday–Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.

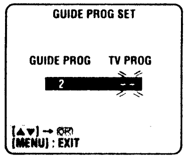
You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (☞ pg. 32).

Satellite Tuner Users
To timer-record a satellite broadcast using ShowView, perform steps **1** – **6** and, before the selected programme begins, select the appropriate channel on the satellite tuner. Then set the tuner's timer. If your satellite tuner doesn't have a timer, leave the unit's power switched on.

ATTENTION

Regarding Guide Program Number Set

"ERROR=GUIDE PROG" appears after performing step **3** on the previous page if the Guide Program number for the ShowView number you entered has not been set.
- If the recorder is in the stop or rewind or fast-forward mode, the following screen will appear with "– –" under "TV PROG" blinking.
  - Press the **NUMBER** keys or **PUSH JOG** △▽ to input the channel position number you recorder receives that station on, then press **OK**.



GUIDE PROG SET
GUIDE PROG 2
TV PROG – –
[▲▼] → OK
[MENU] : EXIT

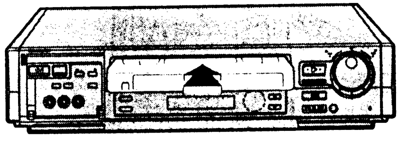
(Ex.) To timer-record a ZDF programme with ShowView
- If your recorder receives ZDF on the channel position 2, press **OK** after entering "2".

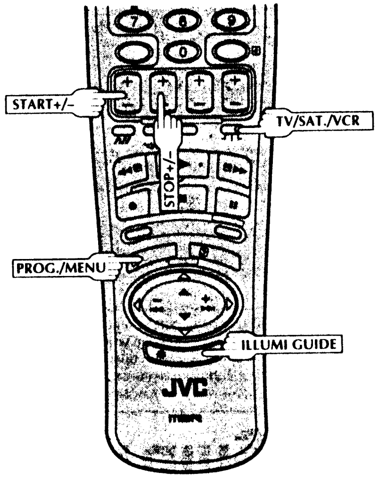
  - Press **MENU**, then try again from step **1**.
- If the recorder is in a mode other than the above mentioned modes, press **MENU** first and input the correct Guide Program number for that ShowView number (☞ pg. 10, "ShowView Setup"), then try again from step **1**.

Regular Timer Programming

Remember, the clock must be set before you can programme the timer (☞ pg. 49).

Before performing the following steps:
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).





When Using The Illumi-Guide Feature
- Buttons light or blink on the remote control for approximately 10 seconds. If the button or buttons extinguish during timer programming, press **ILLUMI GUIDE** and the button or buttons previously lit or blinking come back on. If the button or buttons do not re-light or start blinking again, press **MENU** and re-perform the timer programming procedure from the beginning.
- If for some reason the remote control's signal is not received by the video recorder, press **MENU** and re-perform the timer programming procedure from the beginning.

If you don't know the ShowView number for the programme you wish to record, use the following procedure to set your recorder to timer-record the programme. Or you can use the Illumi-Guide feature, where the remote control tells you which button to press next by lighting it up. To use the Illumi-Guide feature, with the **TV/SAT./VCR** switch set to "VCR", press **ILLUMI GUIDE** before performing step **1**. (**PROG.**, **REW**, **PLAY**, **FF** light up at this time.)
If you aren't going to use the Illumi-Guide feature, go directly to step **1**.

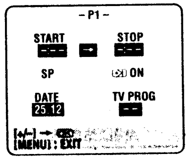
1 ACCESS TIMER PROGRAMMING SCREEN

Press **PROG.**

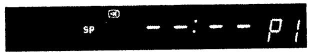
- If you are using the Illumi-Guide feature, the following buttons will light up: **NUMBER** keys (0–9), **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–**, **MENU** and **CANCEL**.

2 ACCESS PROGRAMME SCREEN

Press **START +/–**. (If you're just starting out, "P1" appears.)



The front display panel looks like this:

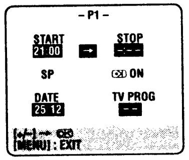


- If you are using the Illumi-Guide feature, the following buttons will light up: **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–** and **MENU**.

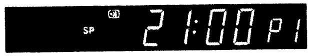
3 ENTER PROGRAMME START TIME

Press **START +/–** to enter the time you want recording to start.

- Press and hold **START +/–** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.



The front display panel looks like this:

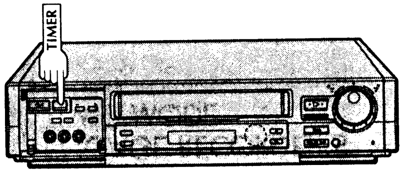


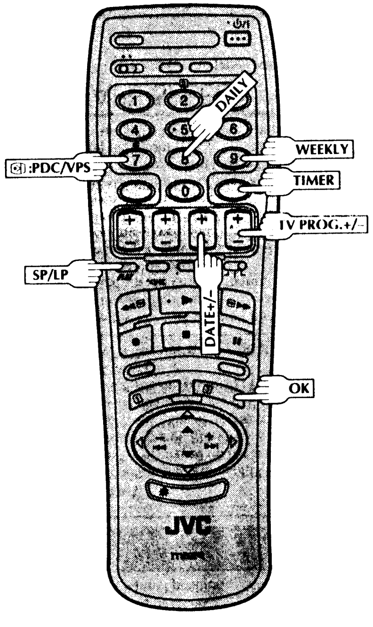
- If you are using the Illumi-Guide feature, the following buttons remain lit: **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–** and **MENU**.

4 ENTER PROGRAMME STOP TIME

Press **STOP +/–** to enter the time you want recording to stop.

- If you are using the Illumi-Guide feature, the following buttons remain lit: **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–** and **MENU**.





NOTES:

- *To timer-record a satellite broadcast through a satellite tuner connected to the AV2 IN/DECODER connector on the back of the recorder, in step **6** above, set "TV PROG" to "AUX2" by pressing **TV PROG. +/–**. Before the selected programme begins, select the appropriate channel on the satellite tuner, then set the tuner's timer. If your satellite tuner doesn't have a timer, leave the unit's power switched on.*
- *You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (☞ pg. 32).*

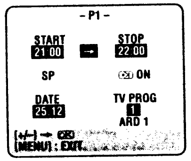
5 ENTER PROGRAMME DATE

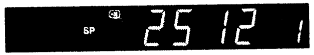
Press **DATE +/–**. (The current date appears on screen. The date you enter appears in its place.)

- If you are using the Illumi-Guide feature, the following buttons remain lit: **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–** and **MENU**.

6 ENTER CHANNEL POSITION

Press **TV PROG. +/–**.





IMPORTANT
Be sure to confirm the setting of PDC/VPS recording.
- If " ⊡ ON" is displayed on the screen or " ⊡ " is lit on the display panel, PDC/VPS is set to ON.
- If " ⊡ OFF" is displayed on the screen or " ⊡ " is not lit on the display panel, PDC/VPS is set to OFF.

To change the setting, press ⊡ : **PDC/VPS** (**NUMBER** key "7").
☞ "PDC/VPS Recording" on page 33.

- If you are using the Illumi-Guide feature, **OK** blinks when the following buttons are lit: **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–** and **MENU**.

7 SET TAPE SPEED

Press **SP/LP (////)** to set the tape speed.

8 RETURN TO NORMAL SCREEN

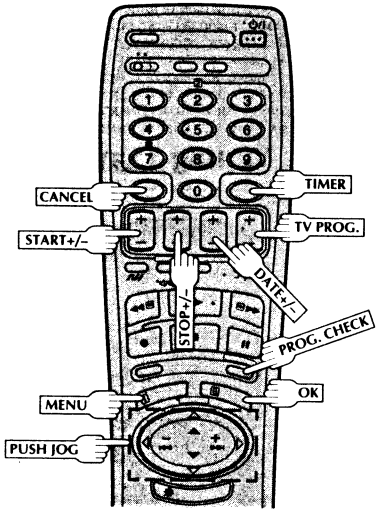
After confirming all information is correct, press **OK** and the normal screen appears.

- Repeat steps **1**–**8** for each additional programme.

9 ENGAGE RECORDER'S TIMER MODE

Press **TIMER**. The recorder turns off automatically.

To Timer-Record Weekly Or Daily Serials . . .
. . . anytime during steps **2** through **8**, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday–Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.



Check And Cancel Programmes

1 ACCESS PROGRAMME DISPLAY AND/OR SCREEN

Press **PROG. CHECK**.

- The display panel shows the programme start time. Pressing **OK** changes the display to the programme stop time, then the date and channel position.
- If the recorder is turned on and the TV is set to its VIDEO channel or AV mode, you can check program information on screen as well.
- Each time you press **PROG. CHECK**, the next programme's information appears.

If All Information Is Correct . . .

. . . programming is completed.

If You Wish To Revise Data . . .

. . . with the recorder's power turned on, go to step **2**.

If You Wish To Cancel A Program . . .

. . . with the recorder's power turned on, press **CANCEL**. All information you input is deleted.

2 REVISE PROGRAMME INFORMATION

Input the appropriate data using the **START +/–**, **STOP +/–**, **DATE +/–** and **TV PROG. +/–** buttons on the remote control.

Auto Timer

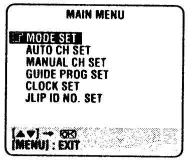
When the Auto Timer is set to ON the timer is automatically engaged when the recorder power is turned off and automatically disengaged when the recorder is powered back on.

1 ACCESS MAIN MENU SCREEN

Press **MENU** twice.

2 ACCESS MODE SET SCREEN

Press **PUSH JOG** △▽ to move the highlight bar (pointer) to "MODE SET", then press **OK**.



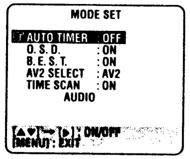
MAIN MENU

☞ MODE SET
AUTO CH SET
MANUAL CH SET
GUIDE PROG SET
CLOCK SET
JLIP ID NO. SET

[▲▼] → OK
[MENU] : EXIT

3 SELECT MODE

Press **PUSH JOG** ▷to select either "ON" or "OFF".



MODE SET

☞ AUTO TIMER : OFF
O. S. D. : ON
B. E. S. T. : ON
AV2 SELECT : AV2
TIME SCAN : ON
AUDIO

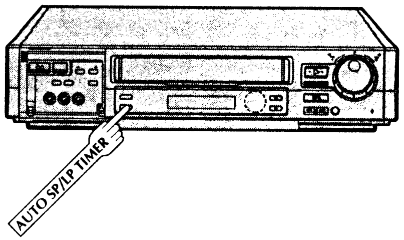
[▲▼] → [▶] : ON/OFF
[MENU] : EXIT

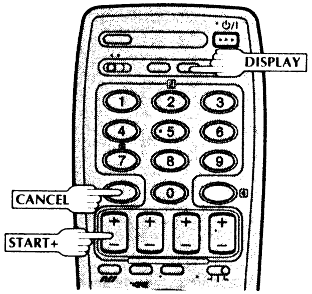
4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

For safety, when Auto timer is set to "OFF", all other recorder functions are disabled while the Timer mode is engaged. To disengage the timer, press ***TIMER****.*





PDC/VPS Recording

Now available from some TV stations, PDC (Programme Delivery Control) and VPS (Video Programme System) are service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over advertised times you preset in the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed.

NOTES:

- *When you manually enter programmes (regular timer programming), set the start time (PDC or VPS time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.*
- *PDC/VPS recording is also possible when a satellite tuner or a cable system is connected to the AV2 IN/DECODER connector on your recorder.*
- *PDC/VPS recording is also possible via the AV1 IN/OUT connector and the front panel connectors.*

How to check if the station being received transmits a PDC/VPS signal

[1] Press **DISPLAY** until the channel position appears on the display panel.
[2] Hold down **START +** for about 5 seconds.
- " ⓓ " appears blinking on the display panel.

If a PDC/VPS signal is detected from the station, " ⓓ " will stop blinking.
If no PDC/VPS signal is detected from the station, " ⓓ " will blink at a slower rate.

[3] Press **DISPLAY** or **START +** again to return to normal display.

Auto SP/LP Timer

If, when recording in SP mode, there is not enough tape to record the entire programme, the recorder automatically switches to LP mode to allow complete recording.

1 ENGAGE AUTO SP/LP TIMER

Press **AUTO SP/LP TIMER** on the recorder front panel. The button lights up.

For Example . . .

Recording a program of 210 minutes in length onto a 180-minute tape

Approximately 150 minutes	Approximately 60 minutes
SP mode	LP mode

Total 210 minutes

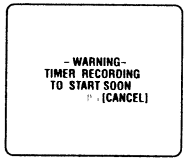
Make sure you press **AUTO SP/LP TIMER** before performing timer programming.

NOTES:

- *The Auto SP/LP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly with any tapes longer than E-180 as well as some tapes of shorter lenghs.*
- *Even if, in step* ***1****, you press* ***AUTO SP/LP TIMER*** *and the button lights up, that doesn't mean that the recorder will automatically change from SP to LP mode during the course of the recording. Watch the tape later to confirm.*
- *If you have programmed the recorder to timer-record 2 or more programs, the second programme and those thereafter may not fit on the tape if you engage the Auto SP/LP Timer mode. In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.*
- *There may be some noise at the point on the tape where the recorder switches from SP to LP mode.*
- *If you perform timer recording with both PDC/VPS and the Auto SP/LP Timer activated, and the programme goes beyond its originally scheduled length, there may be times when the programme cannot be recorded in its entirety.*

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.



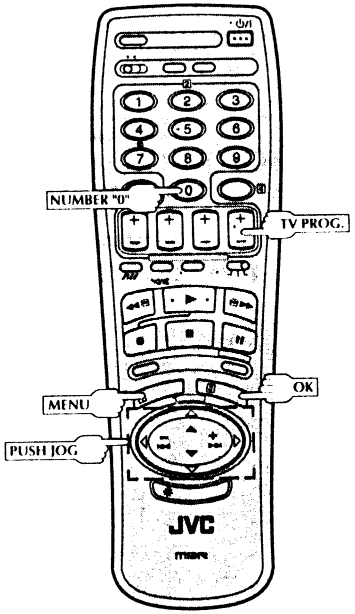
– WARNING–
TIMER RECORDING
TO START SOON
[CANCEL]

NOTES:

- *The warning only appears if you're not in the Timer mode at that time.*
- *If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.*

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **CANCEL**.

Edit To Or From Another Video Recorder


NUMBER "0"
TV PROG.
MENU
OK
PUSH JOG
JVC

You can use your video recorder as the source player or the recording deck.

1 MAKE CONNECTIONS

Connect the player's 21-pin SCART connector to the recorder's 21-pin SCART connector as illustrated on page 35.

When Using Your Video Recorder As The Source Player . . .
. . . connect its AV1 IN/OUT connector to the recording deck.

When Using Your Video Recorder As The Recording Deck . . .
. . . connect its AV2 IN/DECODER or AV1 IN/OUT connector to the source player.

2 SET RECORDING DECK'S INPUT MODE

Set to AUX. With this video recorder, press **NUMBER** key "0" and/or **TV PROG.** to select depending on the connector being used — "AU-1" for the AV1 IN/OUT connector, or "AU-2" for the AV2 IN/DECODER connector.

- When using the AV2 IN/DECODER connector, make sure "AV2 SELECT" is set to "AV2" (see below).

3 START SOURCE PLAYER

Engage its Play mode.

4 START RECORDING DECK

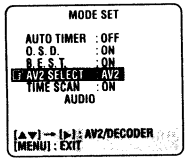
Engage its Record mode.

NOTE:

All necessary cables can be obtained from your dealer.

AV2 SELECT Setting

[1] Press **MENU** twice to access the Main Menu screen.
[2] Press **PUSH JOG** △▽ to move the highlight bar (pointer) to "MODE SET", then press **OK**.
[3] Press **PUSH JOG** △▽ to move the highlight bar (pointer) to "AV2 SELECT".
[4] Press **PUSH JOG** ▷ to move the highlight bar (pointer) to your choice:
  a–AV2 : To use this recorder as the recording deck with the player connected to the AV2 IN/DECODER connector.
  b–DECODER : To use a decoder connected to the AV2 IN/DECODER connector.
[5] Press **MENU** to return to normal screen.

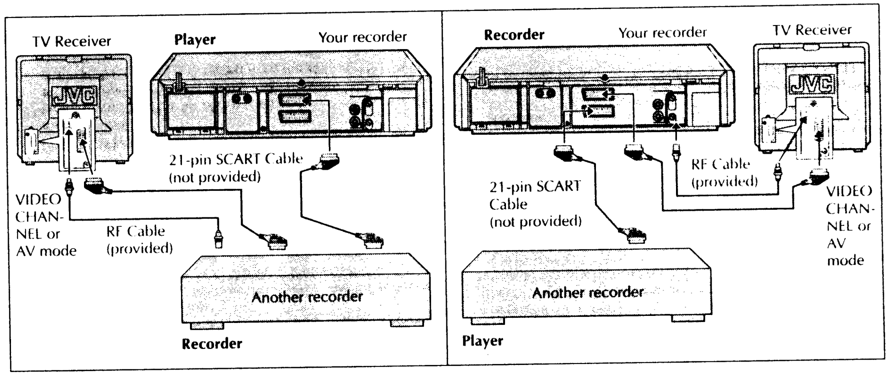


MODE SET

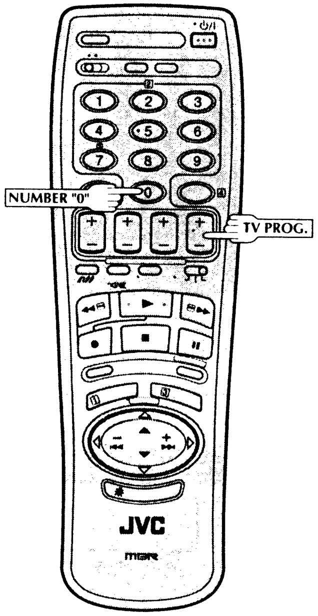
AUTO TIMER : OFF
O. S. D. : ON
B. E. S. T. : ON
AV2 SELECT : AV2
TIME SCAN : ON
AUDIO

[▲▼] → [▶] : AV2/DECODER
[MENU] : EXIT

- If you have a decoder, be sure to set "AV2 SELECT" back to "DECODER" after editing.
- If you're not using a decoder, leave "AV2 SELECT" set to "AV2".
- The default setting is "AV2"; if the recorder's memory backup has expired due to a power cut or because the AC was removed from the recorder, "AV2" will be automatically selected when the power is restored to the recorder. If you are using a decoder, be sure to set "AV2 SELECT" back to "DECODER".


TV Receiver
Player
Your recorder
21-pin SCART Cable (not provided)
VIDEO CHANNEL or AV mode
RF Cable (provided)
Another recorder
Recorder
Recorder
Your recorder
TV Receiver
RF Cable (provided)
21-pin SCART Cable (not provided)
VIDEO CHANNEL or AV mode
Another recorder
Player

Edit From A Camcorder


NUMBER "0"
TV PROG.
JVC

You can use a camcorder as the source player and your video recorder as the recorder.

1 MAKE CONNECTIONS

Connect the camcorder's AUDIO/VIDEO OUT connectors to the recorder's front panel AUDIO/VIDEO input connectors.

- When using a monaural camcorder, connect its AUDIO OUT connector to the AUDIO IN L input connector on your recorder.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling the recorder. Refer to the camcorder's instruction manual for operating procedure.

2 SET RECORDER'S INPUT MODE

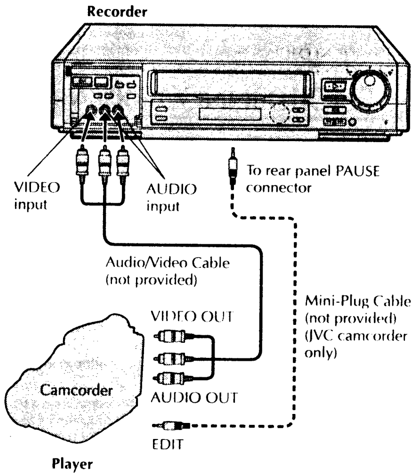
Press **NUMBER** key "0" and/or **TV PROG.** so that "F-AU" appears in place of a channel position number.

3 START CAMCORDER

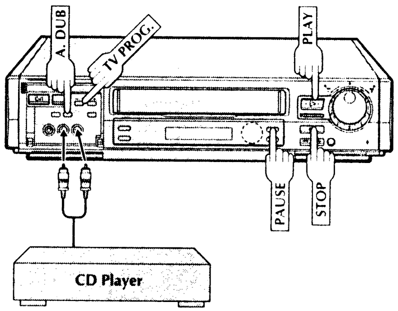
Engage its Play mode.

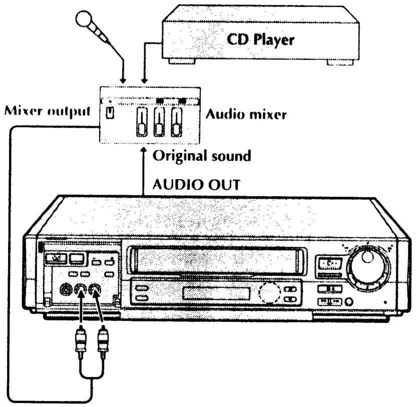
4 START RECORDER

Engage its Record mode.


Recorder
VIDEO input
AUDIO input
To rear panel PAUSE connector
Audio/Video Cable (not provided)
Mini-Plug Cable (not provided) (JVC camcorder only)
VIDEO OUT
AUDIO OUT
EDIT
Camcorder
Player

Audio Dubbing

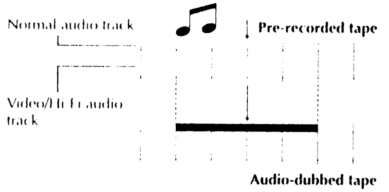

A. DUB
TV PROG.
PLAY
PAUSE
STOP
CD Player


CD Player
Mixer output
Audio mixer
Original sound
AUDIO OUT

NOTES:

- *When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the mixed sound (Hi-Fi + Normal soundtracks), press **AUDIO MONITOR** on the remote control to select "L+R+NORM" (☞ pg. 16).*
- *Audio dubbing stops automatically when the counter reaches "0:00:00", and the recorder enters the Play mode. Check the counter reading before dubbing.*
- *Audio dubbing is also possible using the rear panel AV1 IN/OUT or AV2 IN connector. When using these connectors, make sure to select the correct input mode in step **2**.*
- *Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.*
- *When playing back an audio-dubbed tape, press **AUDIO MONITOR** on the remote control to select the soundtrack you wish to hear (☞ pg. 16).*

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.


Normal audio track
Pre-recorded tape
Video/Hi-Fi audio track
Audio-dubbed tape

1 MAKE CONNECTIONS

Connect an audio component to the AUDIO IN L + R connectors on the recorder's front panel.

- When connecting monaural equipment, use only the recorder's AUDIO IN L connector.

2 SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG.** so that "F-AU" appears in place of a channel number.

3 LOCATE START POINT

Press **PLAY** to start playback of the tape in your recorder, and press **PAUSE** when you find the point where you want to start dubbing.

4 ENGAGE AUDIO DUBBING

Press **A. DUB**.

- Your recorder enters the Audio Dubbing Pause mode. (" ○ " blinks, " ▷ " and " ▯▯ " light up on the front display panel.)
- To perform audio dubbbing with audio mixing, press **AUDIO MONITOR** on the remote control to select "L + R" at this point. *Audio dubbing with audio mixing is not possible if you're using a monaural audio component, or if you don't have an audio mixer.

5 START DUBBING

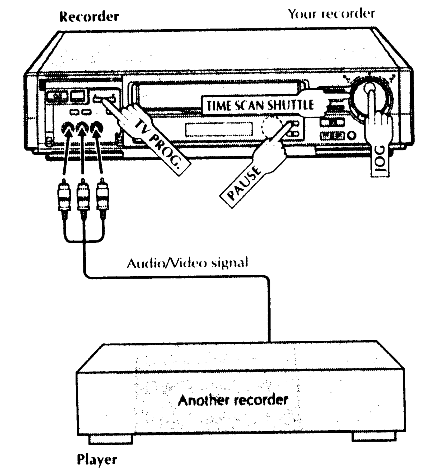
Engage the audio component's Play mode, then press **PLAY** to start the tape in your recorder. Audio dubbing begins at this point.

- " ○ " blinks and " ▷ " is displayed on the front display panel.
- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

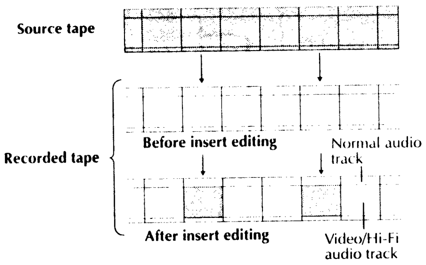
6 END AUDIO DUBBING

Press **STOP** to stop the tape in your recorder, and engage the audio component's Stop mode.

Insert Editing



Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. If you wish to change the normal audio track as well, use the audio dubbing function simultaneously. Use your video recorder as the recorder.



1 MAKE CONNECTIONS

Connect the player's VIDEO OUT and AUDIO OUT connectors to your recorder's VIDEO IN and AUDIO IN on the front panel.

2 SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG.** so that "I - AU" appears in place of a channel number.

3 LOCATE END POINT

Load the recording cassette into your recorder, and play it back to determine the edit-out point (the end of the segment to be replaced) using the **JOG/TIME SCAN SHUTTLE** controls or **PUSH JOG** ◁ ▷ and **PAUSE**.

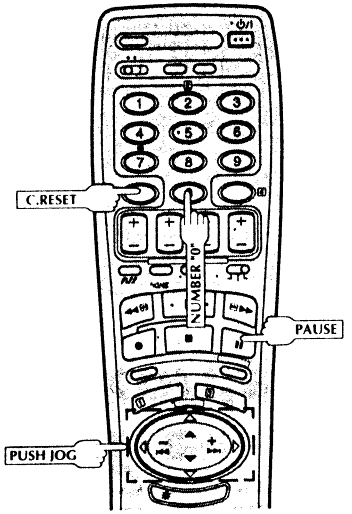
4 RESET THE COUNTER

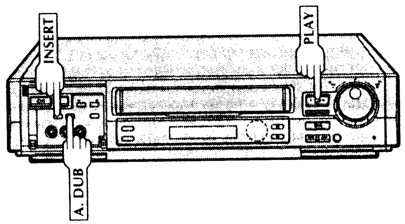
Press **C.RESET** to change the counter display to "0:00:00".

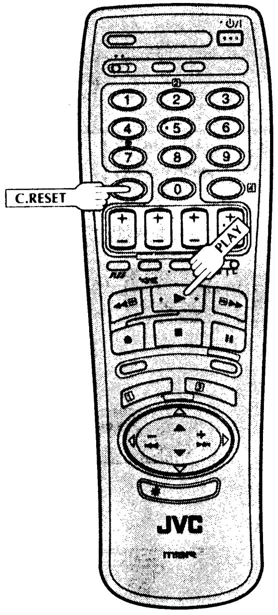
5 LOCATE START POINT

Determine the edit-in point (the beginning of the segment to be replaced) using the **JOG/TIME SCAN SHUTTLE** controls or **PUSH JOG** ◁ ▷ and **PAUSE**.

- Be sure to engage the Still mode at the edit-in point.







6 ENGAGE INSERT EDITING

Press **INSERT**.

- Your recorder enters the Insert-Pause mode. (" ○ ", " ▷ " and " ▯▯ " light up on the front display panel.)
- The TV screen changes from the still picture to the input source you are going to record.

7 START EDITING

Load the source cassette and play back the segment that is to be inserted. When you reach the start of the section of the source tape that you wish to insert, press **PLAY** to start the tape in your recorder; Insert Editing begins at this point.

- " ○ " and " ▷ " are displayed on the front display panel.

8 END INSERT EDITING

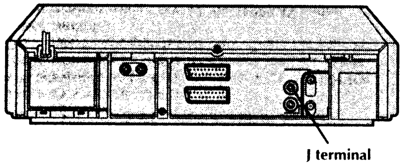
At counter "0:00:00", Insert Editing will stop automatically while the tape continues running in the Play mode. if you wish to stop Insert Editing before the specified edit-out point, press **C.RESET**.

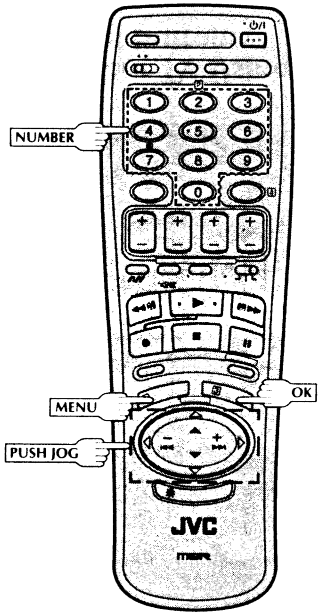
FOR AV INSERT EDITING

If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...
In step **6** above, after you press **INSERT**, press **A. DUB** also.
(" ○ " and " ▷ " blink and " ▯▯ " lights up on the front display panel.

NOTES:

- *Suitable leads can be obtained from your dealer.*
- *Insert editing is not possible with cassettes whose safety tab has been removed.*
- *When insert editing is performed on a tape that has been recorded on another video recorder, the inserted portion may appear distorted.*
- *In insert editing, the recording speed (SP/LP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.*
- *A small portion of the recording which precedes an insert edit may become erased.*
- *Insert Editing is also possible using the rear panel AV1 IN/OUT or AV2 IN connector. When using these connectors, make sure to select the correct input mode in step* **2**.





ATTENTION

After you change your recorder's JLIP ID number, control signal transmission may not work properly. If this happens, turn off the recorder's power off once, then turn it back on and try again.

J Terminal (JLIP(Joint Level Interface Protocol) Connector)

The J Terminal is used to connect the recorder to a personal computer or similar device to allow computerized control of the recorder during editing and certain other operations.

Examples:

- Enables Random Assemble Editing of up to 99 segments with the optional JLIP PLAYER PACK HS-V1EG.
- Allows you to capture still images from the recorder into a personal computer with the optional JLIP VIDEO CAPTURE BOX GV-CB1E.

For further details consult your nearest JVC dealer. Information (in English) is also available at one of JVC's World Wide Web sites at http://www.jvc-victor.co.jp/

JLIP ID Number

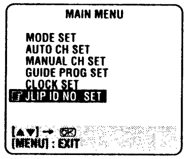
Your recorder has its own JLIP ID number. This ID number must be unique when your recorder is connected to another device via its J terminal. The ID Number is preset to "1" at the factory. You can change this number to any number between "1" and "99". If it is necessary to change the JLIP ID number perform the following steps.

1 ACCESS MAIN MENU SCREEN

Press **MENU** twice.

2 ACCESS JLIP ID NO. SET SCREEN

Press **PUSH JOG** △▽ and move the highlight bar (pointer) to "JLIP ID NO. SET", then press **OK**.

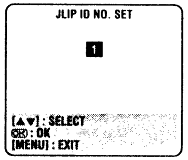

MAIN MENU

MODE SET
AUTO CH SET
MANUAL CH SET
GUIDE PROG SET
CLOCK SET
☞ JLIP ID NO. SET

[▲▼] → OK
[MENU] : EXIT

3 SET JLIP ID NUMBER

Press **PUSH JOG** △▽ to enter the desired ID number.


JLIP ID NO. SET

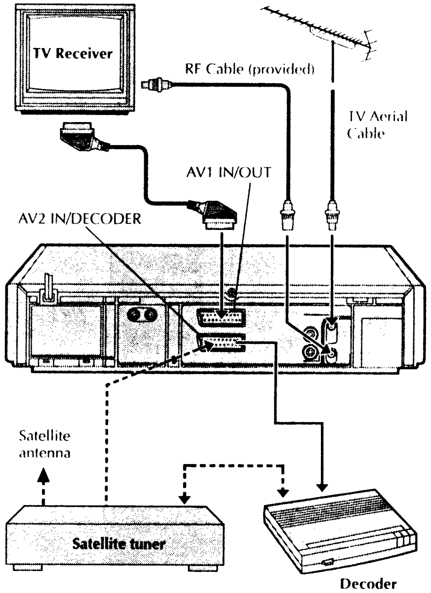
1

[▲▼] : SELECT
OK : OK
[MENU] : EXIT

4 RETURN TO NORMAL SCREEN

Press **MENU** or **OK**.

Connecting/ Using A Decoder



The AV2 IN/DECODER connector can be used as an input terminal for an external decoder (descrambler). Simply connect a decoder and you can enjoy the variety of programming that is available through scrambled channels.

1 SELECT INPUT MODE

Set "AV2 SELECT" to "DECODER". (☞ pg. 34)

2 CONNECT DECODER

Connect your recorder's AV2 IN/DECODER connector to the decoder's Euroconnector using a 21-pin SCART cable.

3 SET TUNER

Perform the procedure as described in "When Receiving A Scrambled Broadcast" on page 46.

NOTE:

When Connecting A Satellite Tuner . . .

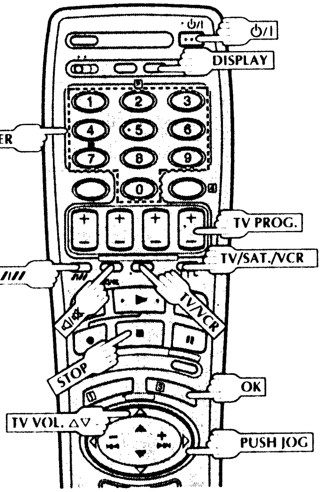
. . . if you don't have a decoder connect the satellite tuner directly to the video recorder's AV2 IN/DECODER connector.

. . . if you have a decoder, first connect the decoder to the decoder input of the satellite tuner, then connect the satellite tuner's output to the recorder's AV2 IN/DECODER connector. Refer to the instruction book for the satellite tuner and decoder.

. . . set "AV2 SELECT" to "AV2". (☞ pg. 34)

*. . . to view a programme via the satellite tuner, select AU 2 mode by pressing **NUMBER** keys and/or **TV PROG.** so that "AU-2" appears on the display panel.*

TV Multi-Brand Remote Control



Control Your TV Using Additional Buttons

The **NUMBER** keys on the remote can also be used to select the TV's channel by setting the remote control to the TV mode.

|1| Set the **TV/SAT./VCR** switch to TV.

|2| Use the **NUMBER** keys, and the **////** **(Digit Entry)** button, the **PUSH JOG** button, the **DISPLAY** button or the **OK** button to select the TV's channel.

- With televisions under Code 01, 02, 03, 04, 06, 07, 09, 10, 13, 14 or 22, the **////** button corresponds to the 1-digit/2-digit entry switching button (often labelled – /– –) of your TV's remote control.
- With televisions under Code 01, 11 or 12, the **PUSH JOG** ◁ button corresponds to the 10 + button, and the **PUSH JOG** ▷ button corresponds to the 20 + button of your TV's remote control.
- With televisions using Code 12, the **DISPLAY** button corresponds to the 30 + button.
- With televisions using Code 09, the **OK** button corresponds to the ENTER button of your TV's remote control.

NOTES:

The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Your remote control can operate the basic functions of your TV set. In addition to JVC TVs, other manufacturer's TVs can also be controlled by setting the appropriate switch on the remote control.

Before you start . . .
- Turn on the TV using its remote control.
- Set the remote control's **TV/SAT./VCR** switch to TV.

1 SET TV BRAND CODE

Refer to the chart below. While holding down ⏻/I, enter your TV's brand code using the **NUMBER** keys, then press **STOP**.

- JVC has four codes. If the TV does not function with one code, try entering another.
- You don't have to repeat this step until you replace your remote control's batteries.

2 TRY OPERATING TV

Press ⏻/I on the remote to turn the TV off. If it goes off, try other operations.

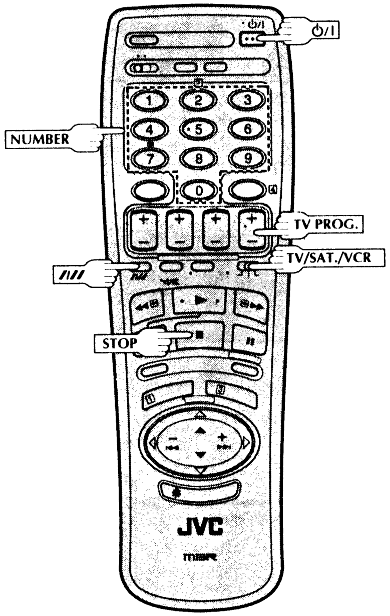
- The ⏻/I button, **TV/VCR** button, **TV PROG. +/–** button, **TV VOL.** ∆∇ button and **🔈/🔇 (Mute)** button on the remote can all be used to operate the TV.
- To return the remote to video recorder control, set its **TV/SAT./VCR** switch to VCR.

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many other models, it may not work with your TV, or in some instances, may have limited function capability.

TV BRAND NAME	CODE
JVC	01, 02, 03, 04
BRANDT	05
NORDMENDE	05
SABA	05
TELEAVIA	05
TELEFUNKEN	05
THOMSON	05
FERGUSON	06
PHILIPS	07
BLAUPUNKT	08
GRUNDIG	08
SONY	09
PANASONIC	10
GRAETZ	11
ITT	11
LUXOR	11
SALORA	11
SELECO	11
MIVAR	12
HITACHI	13
TOSHIBA	14
MITSUBISHI	15
FINLUX	16
NOKIA	17
SHARP	18
FUNAI	20
NEC	22

Satellite Tuner Multi-Brand Remote Control



Your remote control can operate the basic functions of your satellite tuner set. In addition to JVC satellite tuners, other manufacturer's satellite tuners can also be controlled by setting the appropriate switch on the remote control.

Before you start . . .
- Turn on the satellite tuner using its remote control.
- Set the remote control's **TV/SAT./VCR** switch to SAT.

1 SET SATELLITE TUNER BRAND CODE

Refer to the chart below. While holding down ⏻/I, enter your satellite tuner's brand code using the **NUMBER** keys, then press **STOP**.

- Some satellite tuner brands have more than one code. If the satellite tuner does not function with one code, try entering another.
- You don't have to repeat this step until you replace your remote control's batteries.

2 TRY OPERATING SATELLITE TUNER

Press ⏻/I on the remote to turn the satellite tuner off. If it goes off, try other operations.

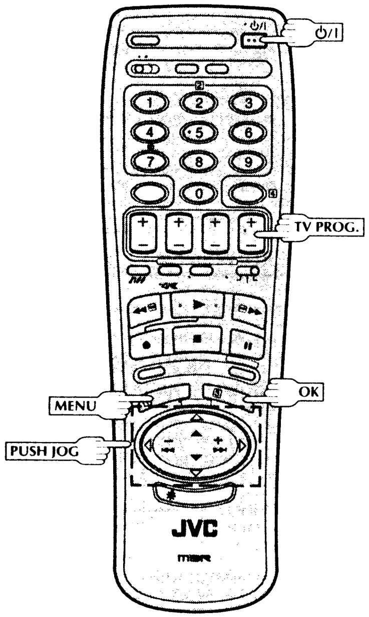
- The ⏻/I button, **TV PROG. +/–** button, **NUMBER** buttons on the remote can all be used to operate the satellite tuner.
- The **NUMBER** buttons will not work with JVC satellite tuners using code 13.
- With satellite tuners using Code 16, the **////** button corresponds to the ENTER button of your satellite tuner's remote control.
- To return the remote to video recorder control, set its **TV/SAT./VCR** switch to VCR.

IMPORTANT

Although the provided remote control unit is compatible with JVC satellite tuners, as well as many other models, it may not work with your satellite tuner, or in some instances, may have limited function capability.

SATELLITE TUNER BRAND	CODE
JVC	13, 14
AMSTRAD	01, 02, 03, 04
SIEMENS	05
GRUNDIG	05, 06
KATHREIN	05, 11, 12
PACE	06, 08
PHILIPS	07
ITT	09
NOKIA	09
SKYMASTER	10
RFT	10
MASPRO	11
BT	13
PANASONIC	15
JERROLD	16

Turn on the TV and select the VIDEO channel (or AV mode).



IMPORTANT
Perform the following steps only if auto channel set has not been set correctly by Auto Set Up function (☞ pg. 4) or if you have moved to a different area or if a new station starts broadcasting in your area.

Your recorder needs to memorise all necessary stations in channel positions in order to record TV programmes. Auto Channel Set automatically assigns all receivable stations in your area so that you can call them up with the **TV PROG.** buttons without going through any vacant channels.

Auto Channel Set

1 TURN ON THE RECORDER

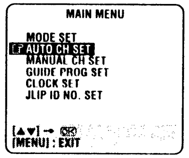
Press ⏻/I.

2 ACCESS MAIN MENU SCREEN

Press **MENU** twice.

3 ACCESS COUNTRY SET SCREEN

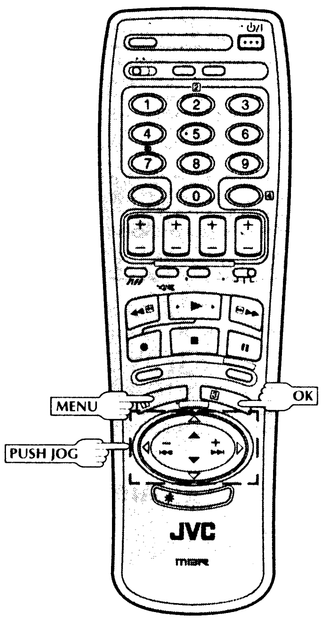
Press **PUSH JOG**△▽ to move the highlight bar (pointer) to "AUTO CH SET", then press **OK**.



```
MAIN MENU

  MODE SET
☞ AUTO CH SET
  MANUAL CH SET
  GUIDE PROG SET
  CLOCK SET
  JLIP ID NO. SET

[▲▼] → OK
[MENU] : EXIT
```

4 SELECT COUNTRY

Press **PUSH JOG**△▽ to move the highlight bar (pointer) to your country's name, then press **OK**. The Language Set screen appears.

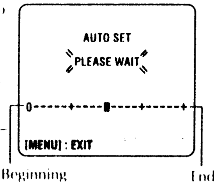


IMPORTANT

- Depending on the reception conditions, the station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, ShowView timer recording (☞ pg. 28) will not work correctly; be sure to check if the Guide Program numbers have been set correctly (☞ pg.10, "ShowView Setup").
- Since your video recorder memorizes all detected stations even if the reception condition is poor, some of those stored stations may produce a noisy picture. To delete those stations, ☞ "Delete A Channel" on page 46.

5 PERFORM AUTO CHANNEL SET

Press **PUSH JOG**△▽ to move the highlight bar (pointer) to the language of your choice , then press **OK** to initiate Auto Channel Set.

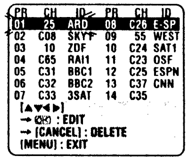


```
AUTO SET
PLEASE WAIT

0-----+-----■-----+------+

[MENU] : EXIT
```

- The Auto Set screen appears, and remains on screen while the recorder searches for receivable stations. As Auto Channel Set progresses, the "■" mark on the screen moves from left to right. Wait until the screen as shown in step **6** appears.

6 VIEW CONFIRMATION SCREEN

The stations your recorder located appear on a Confirmation screen channel positions (PR), channels (CH) and station names (ID ☞ pg. 48). To view the next page of the listing, press **PUSH JOG**△▽◁▷. The blueback screen and the program currently being broadcast by the blinking station appear alternately for 5 seconds each.



```
PR  CH   ID    PR  CH   ID
01  25   ARD   08  C26  E-SP
02  C08  SKYF  09   55  WEST
03   10  ZDF   10  C24  SAT1
04  C65  RAI1  11  C23  OSF
05  C31  BBC1  12  C25  ESPN
06  C32  BBC2  13  C37  CNN
07  C33  3SAT  14  C35
[▲▼◀▶]
 → OK : EDIT
 → [CANCEL] : DELETE
[MENU] : EXIT
```

C: Cable

- The stations located in the selected country appear at the top of the list.
- The Guide Program numbers will also be set automatically during Auto Channel Set.

7 RETURN TO NORMAL SCREEN

Press **MENU**.

- Depending on the reception conditions, the stations may not be stored in order, and the station names may not be stored correctly.
- Using the Confirmation screen, you can skip or add channel positions, enter station names and perform other operations. Refer to pages 46 - 47 for the procedures.
- For information on scrambled broadcasts, refer to page 46.

NOTE:

Fine tuning is performed automatically during Auto Channel Set. If you want to perform it manually, refer to page 47.

Storing Channels Manually

Store channels that were not stored during Auto Set Up (☞ pg. 4) or Auto Channel Set (☞ pg. 44).

1

ACCESS MAIN MENU

Press **MENU** twice.

2

ACCESS CONFIRMATION SCREEN

Press **PUSH JOG**△▽ to move the highlight bar (pointer) to "MANUAL CH SET", then press **OK**. The Confirmation screen appears.

3

SELECT POSITION

Press **PUSH JOG**△▽ ◁▷ until an open position in which you want to store a channel begins blinking, then press **OK**. The Manual Ch. Set screen appears.

4

INPUT CHANNEL

The number "01" appears blinking beneath "CH". Press the **NUMBER** keys to input the channel number you want to store.

- For fine tuning adjustment, press **PUSH JOG** ▷ until the item beneath "CH" begins blinking, then press **PUSH JOG**△▽. While tuning, "T+" or "T–" appears.
- If necessary, to change the band between CH(regular) and CC(cable), press **PUSH JOG**◁▷ until CH or CC is blinking, then press **PUSH JOG** △▽ to select the band.
- When storing a channel that sends scrambled broadcasts, press **PUSH JOG**▷ until "OFF" (Decoder setting) blinks, then press **PUSH JOG**△▽ to set "DECODER" to "ON" ("OFF" is the default setting).

5

ENTER NEW CHANNEL INFORMATION

Press **OK** and the Confirmation screen appears.

- Repeat steps **3** through **5** as necessary.

6

CLOSE CONFIRMATION SCREEN

Press **MENU**.

- To input the station name, see page 47.
- To change positions, see "Change Station Channel Position" (at right).

When Receiving A Scrambled Broadcast

Make sure that "AV2 SELECT" is set to "DECODER" (☞ pg. 34).

1– Perform steps **1** and **2** above.
2– Press **PUSH JOG**△▽ ◁▷ to select the position of the channel broadcasting the scrambled programmes, then press **OK** three times.
3– Press **PUSH JOG** ▷ until "OFF (Decoder setting)" begins blinking, and set it to "ON" by pressing **PUSH JOG**△▽.
4– Press **OK** to access the Confirmation screen.
- Repeat steps **2 – 4** for each additional channel.
5– Press **MENU**.

Perform steps **1** and **2** of the previous procedure to access the Confirmation screen before continuing.

Delete A Channel

1

SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want to delete begins blinking.

2

DELETE CHANNEL

Press **CANCEL**.

- The item directly beneath the cancelled one moves up one line.
- Repeat steps **1** and **2** as necessary.

3

CLOSE CONFIRMATION SCREEN

Press **MENU**.

Change Station Channel Position

1

SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want to move begins blinking. Then press **OK** and the station name (ID) and its channel (CH) number begin blinking.

2

SELECT NEW POSITION

Press **PUSH JOG**△▽◁▷ to move the station to the new channel position, then press **OK**.

Example: If you moved the station in position 3 to position 7, the stations originally in positions 4–7 each move up one space.

- Repeat steps **1** and **2** as necessary.

3

CLOSE CONFIRMATION SCREEN

Press **MENU**.

Perform steps **1** and **2** of "Storing Channels Manually" on page 46 to access the Confirmation screen before continuing.

Set Stations (A)

1

SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want begins blinking. Then press **OK** twice and the station's name (ID) begins blinking.

2

SELECT NEW STATION

Press **PUSH JOG**△▽ until the new station's name (ID) you want to store begins blinking.
Registered station names (☞ pg. 48) appear as you press **PUSH JOG**△▽.

3

SWITCH STATIONS

Press **OK**.

- Repeat steps **1** through **3** as necessary.

4

CLOSE CONFIRMATION SCREEN

Press **MENU**.

Set Stations (B)

NOTE:

*First perform step **1** of the above procedure.*

2

SELECT STATION NAME CHARACTER

Press **PUSH JOG** ▷ and the first letter of the station name begins blinking.

3

ENTER NEW CHARACTER

Press **PUSH JOG**△▽ to cycle through the characters (A–Z, 0–9, –, ∗, +, ⎵ (space)) and stop when the desired one is indicated, then press **PUSH JOG** ▷ to enter. Enter the remaining characters the same way (maximum of 4).
After entering all characters, press **OK**.

- Repeat steps **1** through **3** as necessary.
- If you make a mistake, press **PUSH JOG** ◁ until the incorrect character begins blinking. Then enter the correct character by pressing **PUSH JOG**△▽ .

4

CLOSE CONFIRMATION SCREEN

Press **MENU**.

Fine-Tuning Channels Already Stored

1

SELECT CHANNEL TO FINE-TUNE

Press **PUSH JOG**△▽◁▷ until the channel you want to tune begins blinking.

2

ACCESS MANUAL CH. SET SCREEN

Press **OK** three times. The Manual Ch. Set screen appears.

3

PERFORM TUNING

Press **PUSH JOG**△▽ until the picture is its clearest. Then press **OK**.

- The Confirmation screen appears.
- Repeat steps **1** through **3** as necessary.

4

CLOSE CONFIRMATION SCREEN

Press **MENU**.

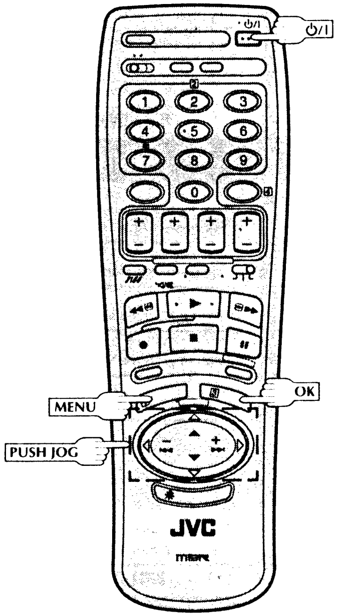
TV Station And ID List

ID*	STATION NAME
1000	TV1000
3SAT	3SAT
ADLT	ADULT
ANT3	ANTENA3
ARD	ARD
ARTE	ARTE
BBC	BBC GROUP
BBC1	BBC1
BBC2	BBC2
BR3	BAYERN3
C+	CANAL PLUS
C1	PORTUGUSES
CAN5	CANALE5
CH4	CHANNEL4
CH5	CHANNEL5
CHLD	CHILD
CINE	CINEMA
CLUB	TELECLUB
CMT	CMT
CNN	CNN
CSUR	ANDALUCIA
DISC	DISCOVERY
DR	DR TV
DRS	DRS
DSF	DSF
ETB1	ETB1
ETB2	ETB2
EURO	EURONEWS
EUSP	EUROSPORTS
FEMM	FEMMAN
FILM	FILM
FNET	FILMNET
FR2	France2
FR3	France3
GALA	GALAVISION
HR3	HESSEN3
INFO	INFO-KANAL
ITA1	ITALIA1
ITA7	ITALIA7
ITV	ITV
JSTV	JSTV
KA2	KA2
KAB1	KABEL1
KAN2	KANAL2
LOCA	LOCAL
M6	M6
MBC	MBR
MCM	MCM
MDR	MDR
MOVE	MOVIE
MTV	MTV
MTV3	MTV3
N3	NORD3
N-TV	N-TV
NBC	NBC SUPER
NDR3	NDR3
NED1	NED1
NED2	NED2
NED3	NED3
NEWS	
NICK	NICKELODEON
NRK	NRK
NRK2	NRK2
ODE	ODEON
ORF1	ORF1
ORF2	ORF2
ORF3	ORF3
OWL3	OWL3
PREM	PREMIERE
PRO7	PRO7
RAI1	RAI1
RAI2	RAI2
RAI3	RAI3
RET4	RETE4
21	TELE21
RTBF	RTBF1 or 2
RTL	RTL
RTL2	RTL2
RTL4	RTL4
RTL5	RTL5
RTP	RTP
S4	SCHWEIZ4
SAT1	SAT1
SBS	SBS
SHOW	SHOW
SIC	SOCIEDADE
SKY	SKY CHANNEL
SKYN	SKY NEWS
SPRT	SPORT
SRTL	SUPER RTL
STAR	STAR-TV
SVT1	SVT1
SVT2	SVT2
SW3	SUEDWEST3
TCC	TCC
TELE	TELE
TEL5	TELE5
TF1	TF1
TM3	TM3
TMC	TELEMONTECARLO
TNT	TNT INT
TRT	TRT INT
TSI	TSI
TSR	TSR
TV1	BRTN TV1
TV2	BRTN TV2
TV3	TV3
TV4	TV4
TV5	TV5
TV6	TV6
TVE1	TVE1
TVE2	TVE2
TVG	TV GALICIA
TVI	TV INDEPENDENT
TVN	TV NORGE
VCR	VIDEO
VERO	VERONICA
VH-1	VH-1
VIVA	VIVA
VIV2	VIVA2
VMTV	VIDEO MUSIC
VOX	VOX
VT4	VT4
VTM	VTM
WDR1	West1
WDR3	West3
YLE1	YLE1
YLE2	YLE2
ZDF	ZDF
ZTV	ZTV

---

* The "ID" abbreviation is what is shown on-screen in lieu of the station name. The "ID" abbreviation is listed in the Confirmation screen and is displayed on the TV screen when the recorder is tuned to a different station.

Turn on the TV and select the VIDEO channel (or AV mode).



IMPORTANT

Perform the following steps only if auto clock set has not been set correctly by Auto Set Up function (☞ pg. 4) or Auto Channel Set (☞ pg. 44) or if the recorder's memory backup has expired.

If you performed Auto Set Up or Auto Channel Set without ever having set the clock previously, the recorder's built-in clock is also set automatically. The Auto and Manual clock setting procedures are necessary when . . .

- a power outage of more than 60 minutes occurs.
- the tuner has been set manually.
- the user desires to set the clock slightly ahead of the actual time.
- the clock was not set even after Auto Set Up or Auto Channel Set was performed.

Whether you perform Auto or Manual clock setting, you can use the convenient Just Clock function.

Just Clock

The Just Clock function provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal.

The Just Clock option appears in the Clock Set and Auto Clock screens, and can be set "ON" or "OFF" (the default setting is "OFF"). Press **OK** until the Just Clock setting begins blinking, then press **PUSH JOG**△▽ to change the setting.

IMPORTANT: If you turn off Just Clock, the accuracy of your recorder's built-in clock may be reduced, which could adversely effect timer recording. We recommend you to keep Just Clock on. In cases where the clock setting data from a PDC signal is incorrect, however, you are advised to keep Just Clock set to "OFF".

Both Auto and Manual clock setting procedures begin from step **4**.

Preparation

1 TURN THE RECORDER ON

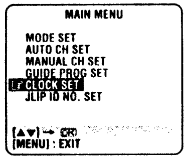
Press ⏻/I.

2 ACCESS MAIN MENU SCREEN

Press **MENU** twice.

3 ACCESS CLOCK SET SCREEN

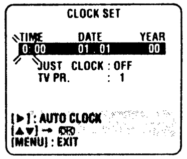
Move the highlight bar (pointer) to "CLOCK SET" by pressing **PUSH JOG** △▽, then press **OK**. The Clock Set screen appears.



MAIN MENU

MODE SET
AUTO CH SET
MANUAL CH SET
GUIDE PROG SET
☞ CLOCK SET
JLIP ID NO. SET

[▲▼] → OK
[MENU] : EXIT

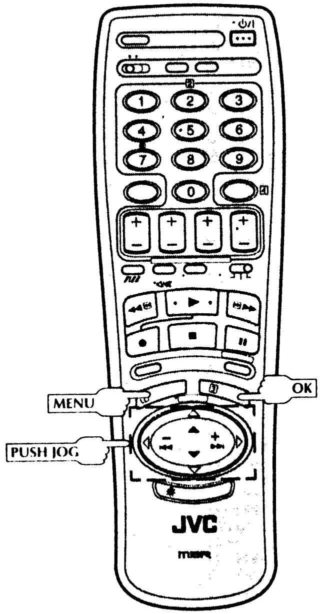


CLOCK SET

TIME DATE YEAR
0:00 01.01 00
JUST CLOCK : OFF
TV PR. : 1

[▶] : AUTO CLOCK
[▲▼] → OK
[MENU] : EXIT

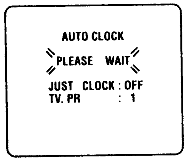
CONTINUED ON NEXT PAGE.



Auto Clock Set

4 SET CLOCK AUTOMATICALLY

At the Clock Set screen, press **PUSH JOG**▷. The Auto Clock screen appears and clock setting begins.


AUTO CLOCK
PLEASE WAIT
JUST CLOCK : OFF
TV. PR : 1

- If "TV PR." isn't set to the channel position on which Auto Clock data is received, "ERROR" appears, and then the screen from step **3** reappears. To set "TV PR.", press **OK** to place the pointer next to it, then cycle through the numbers by pressing **PUSH JOG**△▽ until the number representing the channel position in which the station transmitting clock setting data is stored appears.

5 RETURN TO NORMAL SCREEN

Once clock setting is completed, press **MENU** to return to the normal screen.

Manual Clock Set

4 SET DATE AND TIME

Press **PUSH JOG**△▽ to set the hour, then press **OK**. The "minutes" display begins blinking. Repeat the procedure to set the minutes, day, month and year.

5 SET JUST CLOCK

The default setting is "OFF". Set as desired by pressing **PUSH JOG**△▽, then press **OK**.

- If you set to "OFF", you can disregard the next step as you won't be able to receive regular clock adjustments.

6 SET CLOCK DATA SOURCE CHANNEL POSITION

The recorder is preset to receive clock setting and adjustment data from channel position 1. Press **PUSH JOG**△▽ to set the channel position to the number representing the station transmitting clock setting data, then press **OK**.

7 START CLOCK OPERATION

Press **MENU**.

NOTES:

- *Auto Clock and Just Clock require a PDC signal, and will not operate with a VPS signal.*
- *Just Clock (when set to "ON") enables adjustment of the recorder's built-in clock every hour on the hour, except for 23:00, 0:00, 1:00 and 2:00.*
- *Just Clock is not effective when . . .*
  - *the recorder's power is on (unless the recorder is tuned to the same channel position selected in the Clock Set screen).*
  - *the recorder is in the Timer mode.*
  - *a difference of more than 3 minutes exists between the built-in clock's time and the actual time.*
- *If Just Clock is set to "ON", the recorder's clock is automatically adjusted at the start/end of Summer Time.*
- *Auto clock setting and Just Clock may not function properly depending on the reception condition.*
- *During Manual clock setting, if the day and month data are invalid (such as 31st April), the month digits are cleared automatically and the day digits begin blinking. Input the correct data.*
- *If, in step **4** of the Manual clock setting procedure, the year digits are automatically cleared and the day digits begin blinking, it is possible that you have input 29th February for a non-leap year. Input the correct data.*

Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your video recorder off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is applied to the recorder.	● The mains power cord is disconnected.	Connect the mains power cord.
2. The clock is functioning properly, but the recorder cannot be powered.	● "◷" is displayed on the display panel with Auto Timer set to "OFF".	Press the **TIMER** button to turn the "◷" indicator off.

TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape does not run during recording.	● "⏸" is displayed on the display panel.	Press **PLAY** to turn the "⏸" indicator off.
2. The tape stops during rewind or fast-forward.	● "M" is displayed on the display panel.	Press **C.MEMORY** to deactivate the Counter Memory function and turn the "M" indicator off.
3. The tape will not rewind or fast-forward.	● The tape is already fully rewound or fast-forwarded.	Check the cassette.

PLAYBACK

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The playback picture does not appear while the tape is running.	● If you're using the RF OUT connection . . . . . . the TV receiver's channel selector is not set to the VIDEO channel. . . . the recorder's VIDEO channel has not been correctly set. ● If you're using the AV connection, the TV receiver is not set to the AV mode.	If you are using the RF OUT connection . . . . . . set the TV receiver to the VIDEO channel. (☞ pg. 8) . . . Perform "Video Channel Set" (☞ pg. 8) If you are using the AV connection, set the TV to its AV mode.
2. Noise appears during normal playback.	● The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 14)
3. Noise appears during slow-motion playback.	● The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 14)
4. Noise appears during still playback.		Press **TV PROG.+** or – a few times to remove the noise bars from the screen.
5. Breaks are noticeable in Hi-Fi soundtrack	● Automatic tracking is engaged.	Engage and adjust tracking manually. (☞ pg. 14)
6. The playback picture is blurred or interrupted while TV broadcasts are clear.	● The video heads may be dirty.	Consult your JVC dealer.

RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	● There is no cassette loaded, or the cassette loaded has had its Record Safety tab removed.	Insert a cassette, or using adhesive tape, reseal the slot where the tab was removed.
2. TV broadcasts cannot be recorded.	● "AU" has been selected as the input mode.	Set to the desired channel.
3. Tape-to-tape editing is not possible.	● The source (another video recorder, camcorder) has not been properly connected. ● All necessary power switches have not been turned on. ● The input mode is not correct.	Confirm that the source is properly connected. Confirm that all units' power switches are turned on. Set the input mode to "AU".

CONTINUED ON NEXT PAGE.

4. Camcorder recording is not possible.	● The camcorder has not been properly connected. ● The input mode is not correct.	Confirm that the camcorder is properly connected. Set the input mode to "AU".

TIMER RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	● The clock and/or the timer have been set incorrectly. ● The timer is not engaged.	Re-perform the clock and/or timer settings. Press **TIMER** and confirm that "🕒" is displayed on the display panel.
2. On-screen timer programming is not possible.	● Timer recording is in progress.	Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.
3. "🕒" and "📼" on the display panel won't stop blinking.	● The timer is engaged but there's no cassette loaded.	Load a cassette with the Record Safety tab intact, or cover the hole using adhesive tape.
4. The cassette is automatically ejected, and "🕒" and "📼" on the display panel won't stop blinking.	● The loaded cassette has had its Record Safety tab removed.	Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the Record Safety tab intact.
5. "🕒" blinks for 10 seconds and the Timer mode is disengaged.	● **TIMER** has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly.	Check the programmed data and re-program as necessary, then press **TIMER** again.
6. The cassette is automatically ejected, the power shuts off and "🕒" and "📼" won't stop blinking.	● The end of the tape was reached during timer recording.	The programme may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire programme.
7. ShowView does not timer-record properly.	● The recorder's channel positions have been set incorrectly.	Refer to "Guide Program Number Set" and re-perform the procedure (☞ pg. 10).

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Whistling or howling is heard from the TV during camcorder recording.	● The camcorder's microphone is too close to the TV. ● The TV's volume is too high.	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
2. When scanning channels, some of them are skipped over.	● Those channels have been designated to be skipped.	If you need the skipped channels, restore them (☞ pg. 46).
3. The channel cannot be changed.	● Recording is in progress.	Press **PAUSE** to pause the recording, change channels, then press **PLAY** to resume recording.
4. The remote control won't operate the TV or satellite tuner.	● The **TV/SAT./VCR** switch is in the wrong position.	Set the switch to the correct position.
5. Channel settings that were made manually seem to have changed or disappeared.	● After the manual settings were made, Auto Channel Set was performed.	Perform manual setting again.
6. No channels are stored in the recorder's memory.	● The TV aerial cable was not connected to the recorder when Auto Set Up was performed.	Connect the TV aerial cable to the recorder properly and turn off the recorder power once, then turn the recorder power back on again. The recorder will try Auto Set Up again (☞ pg. 4).

PLAYBACK

Q. What happens if the end of the tape is reached during playback or search?
A. The tape is automatically rewound to the beginning.

. . . .

Q. Can the video recorder indefinitely remain in the still mode?
A. No. It stops automatically after 5 minutes to protect the heads.

. . . .

Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?
A. No, it is normal.

. . . .

Q. Other than preventing further recording, what effect does removing the Record Safety tab have?
A. It disables marking of index codes.

. . . .

Q. Sometimes, during Index Search, the video recorder can't find the programme I want to see. Why not?
A. There may be index codes too close together.

. . . .

RECORDING

Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the beginning of the continuation of recording. Why does this happen?
A. This is normal. It reduces distortion at the pause and resume points.

. . . .

Q. Can the video recorder indefinitely remain in the Record-Pause mode?
A. No. The video recorder goes to its Stop mode automatically after 5 minutes to protect the heads.

. . . .

Q. What happens if the tape runs out during recording?
A. The video recorder automatically rewinds it to the beginning.

. . . .

TIMER RECORDING

Q. " ○ " and "🕒" remain lit on the display panel. Is there a problem?
A. No. This is a normal condition for a timer recording in progress.

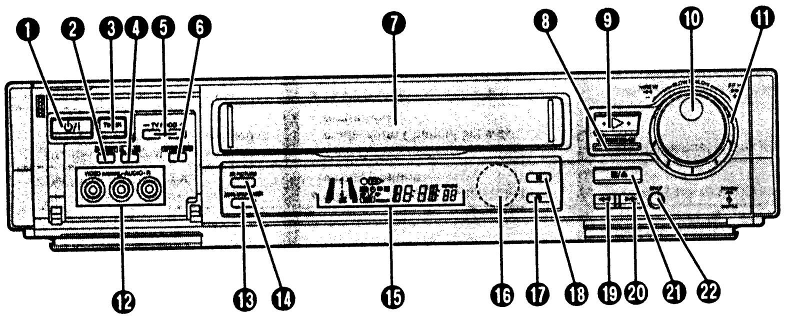
. . . .

Q. Can I program the timer while I'm watching a tape or a TV broadcast?
A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the program or tape you're viewing can be heard.

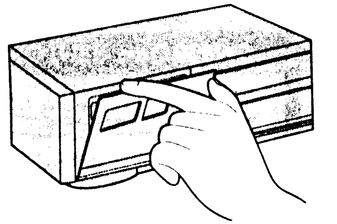
. . . .

ATTENTION:
This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the recorder off and unplug the mains power cord. Then plug it in again and turn the recorder on. Take out the cassette. After checking the cassette, operate the unit as usual.

FRONT VIEW

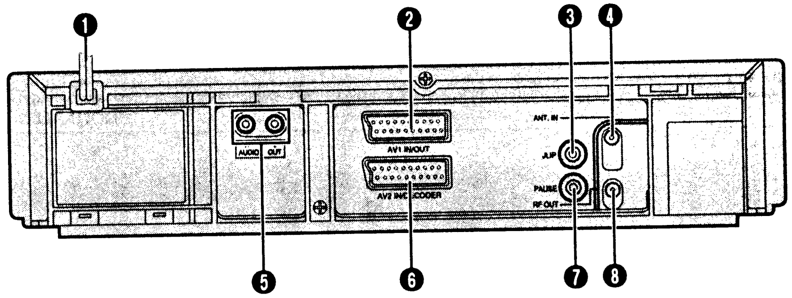


Open the lid to access covered connectors and buttons.



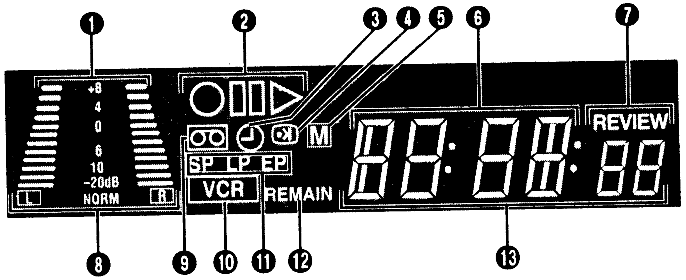
❶ STANDBY/ON ⏻/I Button ☞ pg. 4
❷ INSERT Button ☞ pg. 39
❸ TIMER Button ☞ pg. 29, 31
❹ A. DUB [Audio Dubbing] Button ☞ pg. 37
❺ TV PROG. +/– Buttons ☞ pg. 21
❻ SPATIALIZER Button ☞ pg. 16
❼ Cassette Loading Slot
❽ TIME SCAN Indicator ☞ pg. 18
❾ PLAY Button ☞ pg. 12
❿ TV PROG. Dial ☞ pg. 21
JOG Dial ☞ pg. 13
⓫ TIME SCAN SHUTTLE Ring ☞ pg. 18
⓬ VIDEO/AUDIO Input Connectors ☞ pg. 36
⓭ AUTO SP/LP TIMER Button ☞ pg. 33
⓮ 3R PICTURE Button ☞ pg. 14
⓯ Display Panel ☞ pg. 55
⓰ Infrared Beam Receiving Window
⓱ RECORD Button ☞ pg. 21
⓲ PAUSE Button ☞ pg. 13
⓳ Rewind [REW] Button ☞ pg. 12
⓴ Fast Forward [FF] Button ☞ pg. 12
㉑ STOP/EJECT Button ☞ pg. 12
㉒ SP/LP Button ☞ pg. 21

REAR VIEW



❶ Mains Power Cord ☞ pg. 3
❷ AV1 IN/OUT Connector ☞ pg. 3, 34
❸ J Terminal [JLIP (Joint Level Interface Protocol) Connector] ☞ pg. 40
❹ ANT. IN Connector ☞ pg. 3
❺ AUDIO OUT (L/R) Connectors ☞ pg. 3
❻ AV2 IN/DECODER Connector ☞ pg. 34, 41
❼ Remote PAUSE Connector ☞ pg. 36
❽ RF OUT Connector ☞ pg. 3

DISPLAY PANEL

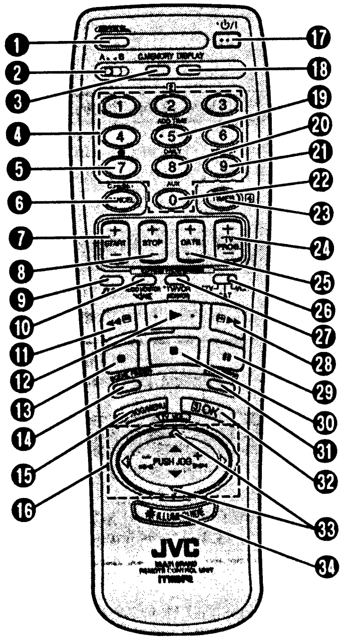


❶ B.E.S.T. Picture System Display ☞ pg. 22
Audio Level Indicator
❷ Symbolic Mode Indicators

PLAY: FF/REW VARIABLE SHUTTLE SEARCH:	▷	STILL: SLOW:	▯▯▷
		RECORD:	○
		RECORD PAUSE:	○▯▯
AUDIO DUBBING:			○ ▷
AUDIO DUBBING PAUSE:			○▯▯▷
INSERT:			○ ▷
INSERT PAUSE:			○▯▯▷
AUDIO DUBBING INSERT:			○ ▷
AUDIO DUBBING INSERT PAUSE:			○▯▯▷

❸ "Timer" Indicator ☞ pg. 29, 31
❹ PDC/VPS Indicator ☞ pg. 33
❺ Counter Memory Indicator ☞ pg. 17
❻ Channel*/Mode Display ☞ pg. 21
* Channel position 1 will be displayed as "CH 1".
Clock Display ☞ pg. 5, 49
❼ Instant REVIEW Indicator ☞ pg. 15
❽ Audio Mode Indicator ☞ pg. 16
❾ "Cassette Loaded" Mark
❿ VCR Indicator ☞ pg. 25
⓫ Tape Speed Indicators ☞ pg. 21
⓬ Tape Remaining Time Indicator ☞ pg. 25
⓭ Counter/Remain Display ☞ pg. 25

REMOTE CONTROL

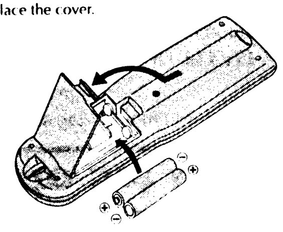


① REVIEW Button ☞ pg. 15
② A/B Code Switch ☞ pg. 17
③ C. MEMORY Button ☞ pg. 17
④ NUMBER Keys ☞ pg. 21, 28
⑤ ⊡ (PDC/VPS) Button ☞ pg. 29, 31
⑥ CANCEL Button ☞ pg. 11
  C. RESET Button ☞ pg. 25
⑦ START +/– Button ☞ pg. 30
⑧ STOP +/– Button ☞ pg. 30
⑨ SP/LP Button ☞ pg. 21
  Auto Tracking Button ☞ pg. 14
  Digit Entry Button ☞ pg. 42
⑩ AUDIO MONITOR Button ☞ pg. 16
  🔈/🔇 (TV Mute) Button ☞ pg. 42
⑪ Rewind [REW] Button ☞ pg. 12
⑫ Play Button ☞ pg. 12
⑬ Record Button ☞ pg. 21
⑭ SCENE FINDER Button ☞ pg. 17
⑮ PROG./MENU Button ☞ pg. 7, 28
⑯ PUSH JOG △▽ ◁▷ Button ☞ pg. 7
  PUSH JOG ◁▷ Button ☞ pg. 13, 15, 42
⑰ STANDBY/ON ⏻/I Button ☞ pg. 4
⑱ DISPLAY Button ☞ pg. 25
⑲ ADD TIME Button ☞ pg. 29
⑳ DAILY Button ☞ pg. 29, 31
㉑ WEEKLY Button ☞ pg. 29, 31
㉒ AUX Button ☞ pg. 34
㉓ TIMER Button ☞ pg. 29, 31
㉔ TV PROG. +/– Button ☞ pg. 21
㉕ DATE +/– Button ☞ pg. 31
㉖ TV/SAT./VCR Switch ☞ pg. 42, 43
㉗ TV/VCR Button ☞ pg. 25, 42
㉘ Fast Forward [FF] Button ☞ pg. 12
㉙ Pause Button ☞ pg. 13
㉚ Stop Button ☞ pg. 12
㉛ PROG. CHECK Button ☞ pg. 32
㉜ OK Button ☞ pg. 7
㉝ TV VOL △▽ Button ☞ pg. 42
㉞ ILLUMI GUIDE Button ☞ pg. 28

Buttons with a small dot on the left side of the name can also be used to operate your TV with the **TV/SAT./VCR** switch set to "TV". ☞ pg. 42

Installing Batteries

1. Open the battery compartment cover.
2. Insert 2 "R6"-size batteries (provided) in the correct directions.
3. Replace the cover.



How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets and satellite tuners of JVC and other brands. ☞ pg. 42, 43.

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

NOTE:

If the remote control doesn't work properly, remove its batteries, wait a short time and then try again.

SPECIFICATIONS

GENERAL

Power requirement	: AC 220 – 240 V∿, 50/60 Hz
Power consumption	: 24 W
Temperature	
Operating	: 5°C to 40°C
Storage	: –20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 430 x 94 x 348 mm
Weight	: 4.5 kg
Format	: VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal,625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin scart connectors : IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position "AU")
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channels 22 – 69 (Adjustable)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2

Specifications shown are for SP mode unless otherwise specified.
E.& O.E. Design and specifications subject to change without notice.

EN

HR-DD949E/EH

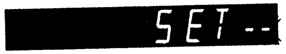
Auto Set Up - referring to the display panel

The Auto Set Up function sets the tuner channels, clock and Guide Program numbers automatically.

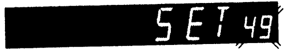
BEFORE YOU START PLEASE MAKE SURE THAT:

- ■ The TV aerial cable is connected to the ANT.IN jack on the rear panel of the video recorder.
- ■ The video recorder's mains power cord is connected to a mains outlet.
- ■ The video recorder is turned off.
- ■ Load batteries into the remote control.

1 Press ⏻/I (recorder/remote).



2 Press **PUSH JOG** △▽ (remote) to select the international telephone country code.
(Ex.) DEUTSCHLAND is selected.



- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step **3**.

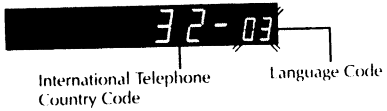
International Telephone Country Code

SUOMI	: 358	SUISSE	: 41
PORTUGAL	: 351	ITALIA	: 39
DEUTSCHLAND	: 49	ESPAÑA	: 34
NORGE	: 47	BELGIUM	: 32
SVERIGE	: 46	NEDERLAND	: 31
DANMARK	: 45	GREECE	: 30
ÖSTERREICH	: 43	OTHERS	: - -

* Depending on the model, the selectable codes may be limited.

- If you have selected 32 (BELGIUM) or 41 (SUISSE), press **OK** (remote) and select the language code by pressing **PUSH JOG** △▽ (remote), then go to step **3**.

(Ex.) FRANCAIS is selected for BELGIUM



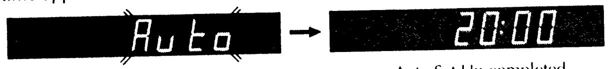
Language Code for the HR-DD949E

ENGLISH	: 01	ITALIANO	: 04
DEUTSCH	: 02	NEDERLANDS	: 05
FRANCAIS	: 03		

Language Code for the HR-DD949EH

ENGLISH	: 01	CASTELLANO	: 04
DEUTSCH	: 02	NEDERLANDS	: 05
FRANCAIS	: 03		

3 Press **OK** (remote). Do NOT press any button on the video recorder or remote control until the current time appears.



During Auto Set Up

Auto Set Up completed

- If "CH1" or "– –:– –" appears on the display panel, see page 5 of the instructions.

**Once you have performed Auto Set Up, even if the recorder's memory backup has expired, the recorder will not perform Auto Set Up again.*

FOR MORE INFORMATION SEE INSTRUCTIONS/P4

JVC
VICTOR COMPANY OF JAPAN, LIMITED

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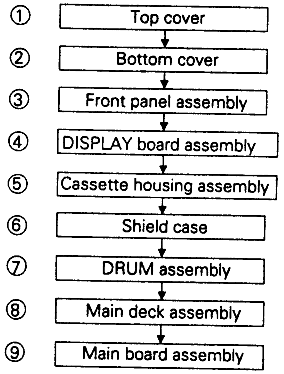
E/EH
Printed in Japan
0597HOV*UN*VP

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART

This flowchart lists shows the disassembly steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend,route and dress the flat cables as they were originally.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	5(S1), SIDE PANEL(L),(R)	
②	BOTTOM COVER	D2	(S2), 7(L1)	
③	FRONT PANEL ASSEMBLY	D3	7(L2),*JOG/SHUTTLE *CN854	<NOTE 1>
④	DISPLAY BOARD ASSEMBLY	D4	12(L3),*CN1201, *CN1202	<NOTE 2>
⑤	CASSETTE HOUSING ASSEMBLY	D5	2(S3),2(S4)	<NOTE 3>
⑥	SHIELD CASE	D6	2(S5),*CN1	

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig.No. showing procedure or part location
(4) Indentification of part to be removed,unhooked,unlocked, released,unpluged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
(5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	5(S1), SIDE PANEL(L), (R)	
②	BOTTOM COVER	D2	(S2), 7(L1)	
③	FRONT PANEL ASSEMBLY	D3	7(L2),*JOG/SHUTTLE *CN854	<NOTE1>
④	DISPLAY BOARD ASSEMBLY	D4	12(L3),*CN1201 *CN1202	<NOTE2>
⑤	CASSETTE HOUSING ASSEMBLY	D5	2(S3) ,2(S4)	<NOTE3>
⑥	SHIELD CASE	D6	2(S5), *CN1	
⑦	DRUM ASSEMBLY	D7	3(S6),WR1	<NOTE4>
⑧	MAIN DECK ASSEMBLY	D8	2(S7),WR2, WR3,2(L4),*CN703	<NOTE5>
⑨	MAIN BOARD ASSEMBLY	D9	3(S8)	

<NOTE1>
When reattaching the front panel assembly, make sure that the door opener (a) of the cassette housing assembly is lowered in position prior to the reinstallation.

<NOTE2>
When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE3>
When reattaching the cassette housing assembly, pay careful attention to the switch lever not to make it touch the REC switch knob of the REC SAFETY board assembly from the upside.
(If the REC switch knob of the REC SAFETY board assembly is damaged, cassette loading is impossible.)

<NOTE4>
When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE5>
- When removing the Main deck assembly only, unhook the two spacers connecting it with the Main board assembly with pliers from the back side of the Main board assembly first, and then remove the Main deck assembly.
- When reattaching the Main deck assembly to the Main board assembly, make sure to set the spacers into the retaining slots respectively.

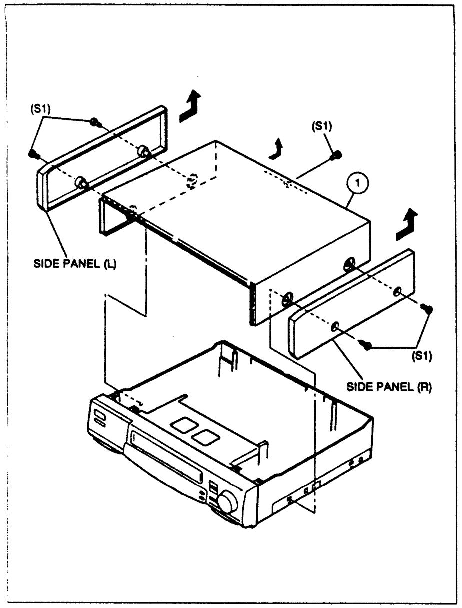

(S1)
(S1)
①
SIDE PANEL (L)
(S1)
SIDE PANEL (R)

Fig. D1

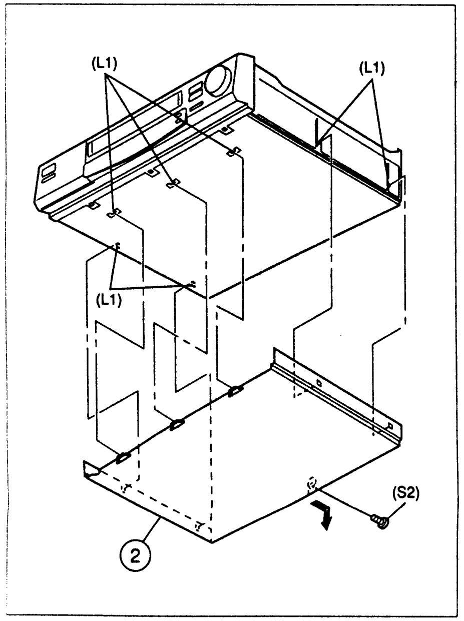


Fig. D2

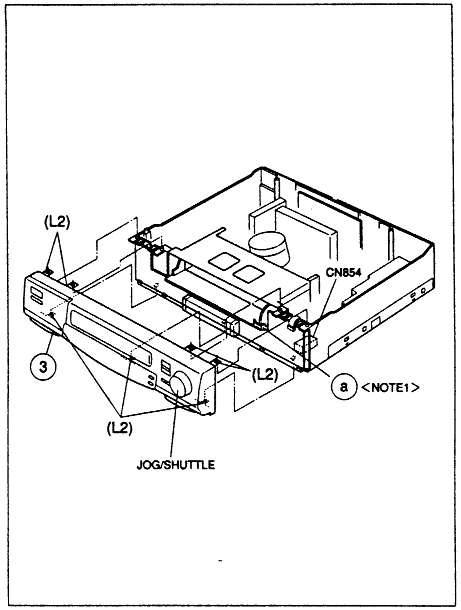

(L2)
CN854
③
(L2)
ⓐ <NOTE1>
(L2)
JOG/SHUTTLE

Fig. D3

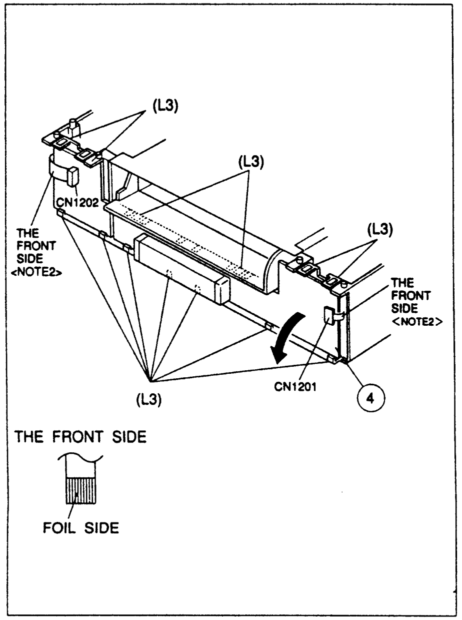

(L3)
(L3)
CN1202
THE FRONT SIDE <NOTE2>
(L3)
THE FRONT SIDE <NOTE2>
(L3)
CN1201
④
THE FRONT SIDE
FOIL SIDE

Fig. D4

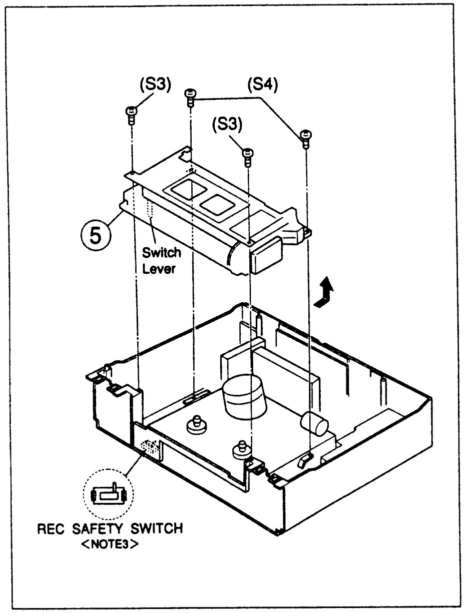

(S3)
(S4)
(S3)
⑤
Switch Lever
REC SAFETY SWITCH <NOTE3>

Fig. D5

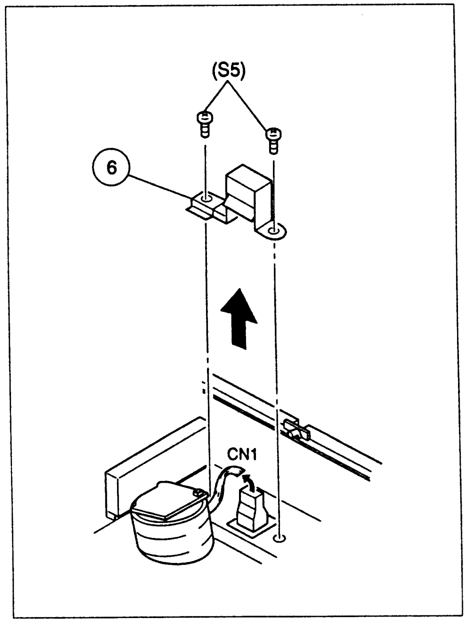


Fig. D6

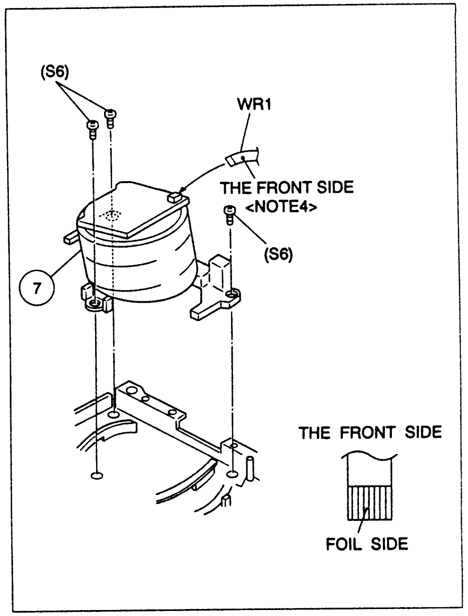

(S6)
WR1
THE FRONT SIDE <NOTE4>
(S6)
⑦
THE FRONT SIDE
FOIL SIDE

Fig. D7

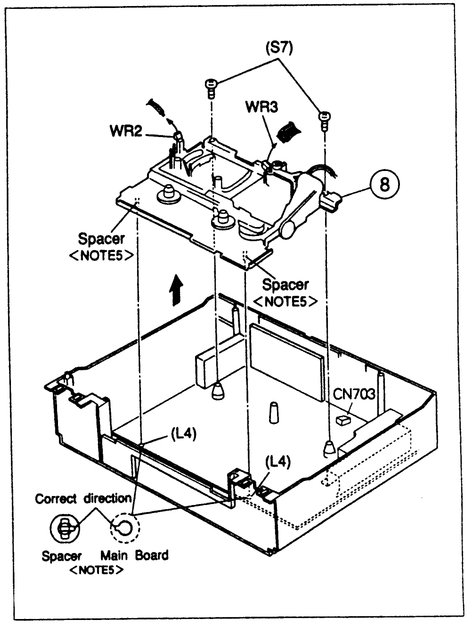

(S7)
WR2
WR3
⑧
Spacer <NOTE5>
Spacer <NOTE5>
CN703
(L4)
(L4)
Correct direction
Spacer
Main Board
<NOTE5>

Fig. D8

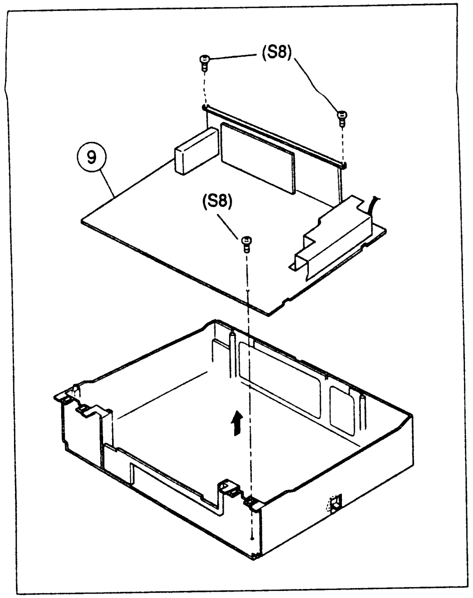


Fig. D9

1.4 CASSETTE HOUSING INSTALLATION

NOTE: *Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.*

1. Check that the hole of the control cam are aligned to the deck hole. If necessary, turn the loading motor belt by hand to adjust the position.

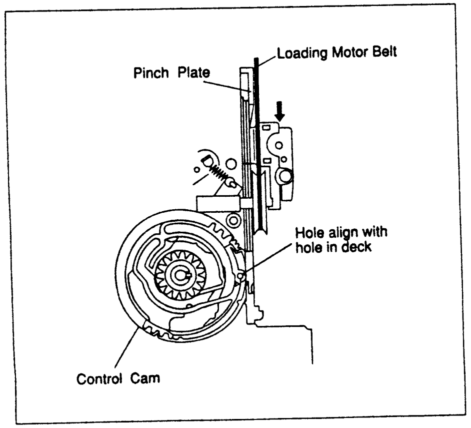


Fig. 1-4-1

1.5 SERVICE POSITION

1.5.1 How to take out the Mechanism and Main board assemblies.

(1) Remove the Top cover, Front panel assembly, CN1201 and CN1202 of DISPLAY board assembly.

(2) Take out 5 screws Ⓐ, 2 screws Ⓑ and 1 screw Ⓒ as shown in Fig.1-5-1.

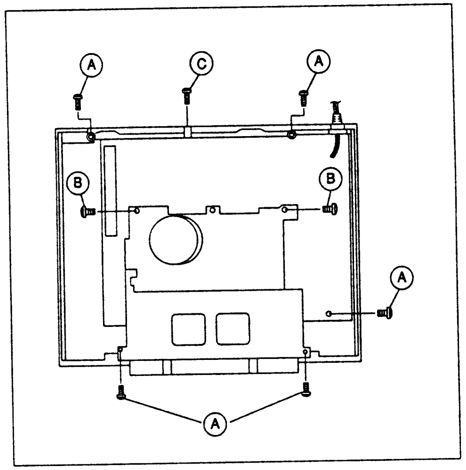


Fig. 1-5-1

(3) Remove the Mechanism assembly (including Cassette housing) and Main board assembly out of the chassis as shown in Fig. 1-5-2.

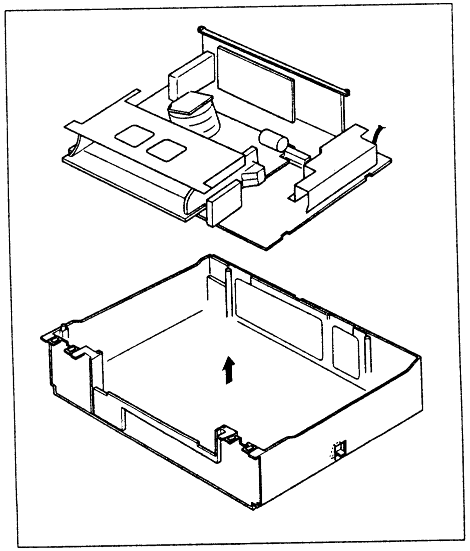


Fig. 1-5-2

(5) Turn over the Mechanism assembly and Main board assembly then connect CN1201of the DISPLAY board assembly.

(6) Carry out checks & repairs as necessary as shown in Fig.1-5-3.

Note: *When input the AUDIO/VIDEO signal from connector, connect CN1202 of the DISPLAY board assembly.*

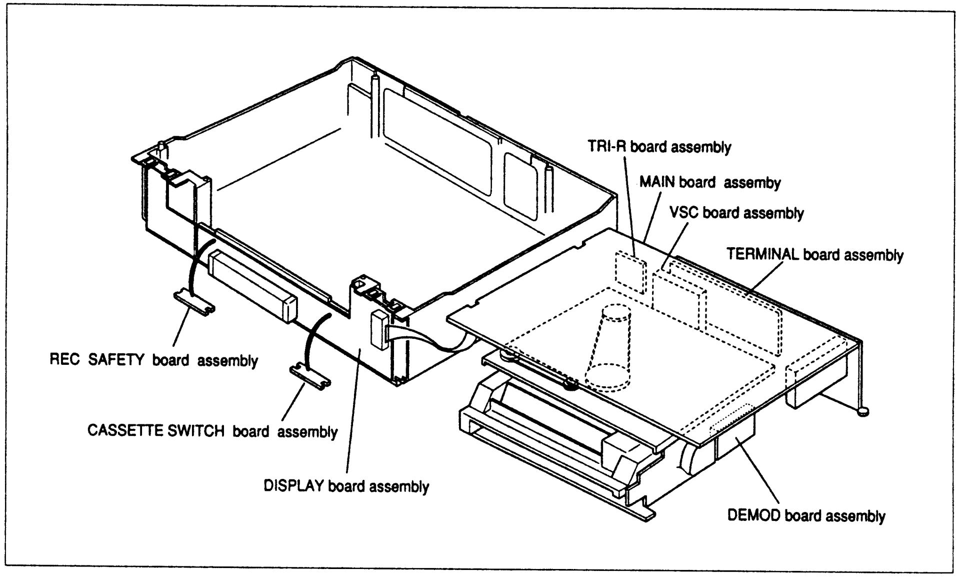


Fig. 1-5-3

1.5.2 Cautions on cassette loading when mechanism is in service position

The REC SAFETY board assembly of this set serves both for detecting the safety tab (erasure prevention tab) of a cassette and detecting a cassette loaded. Therefore, cassette loading in the condition that the mechanism is disassembled from the set needs manual operation of the switches of the REC SAFETY board assembly and the CASSETTE SWITCH board assembly.

1.5.3 Cassette loading and ejecting procedures when mechanism is in service position

(1) Insert a cassette tape halfway into the cassette housing assembly.

(2) Press the switch of the REC SAFETY board assembly to turn on.

(3) When the cassette loading begins and the cassette goes down to the bottom, immediately press the switch of the REC SAFETY board assembly to turn off and hold the status that the switch of the CASSETTE SWITCH board assembly is turned on. (Fix the switch with adhesive tape or put a screwdriver, etc. on it to leave the switch in the ON status.)

(4) In this status, desired operations (recording, playback, fast forward, rewind, etc.) can be performed.

Note: *When the mechanism is in the service position, the safety tab of cassette tape is not detected and recording on cassette tapes without safety tab is possible. Therefore, carefully choose a cassette tape for operation in this mode so as to avoid using cassette tapes of important recording.*

(5) For ejecting the cassette in this status, do it in the reverse order of cassette loading mentioned above.

Note: *If the manual operation REC SAFETY switch timing is incorrect, the cassette may be completely or partially ejected, and the cassette is often ejected incompletely. In such a case, it is possible to take out the cassette by hand.*

If it is desired to load a cassette again after the cassette is ejected in the above procedure, make sure to set the tray of the cassette housing assembly in the frontmost position prior to loading the cassette once again.

1.5.4 Opening on the chassis.

The chassis assembly has openings for easy access to the checkpoints and connector pins as shown in Fig.1-5-4.

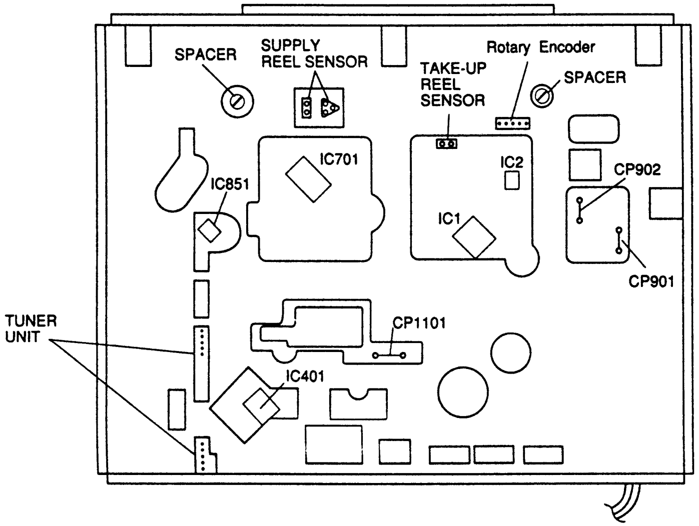

SPACER
SUPPLY REEL SENSOR
TAKE-UP REEL SENSOR
Rotary Encoder
SPACER
IC701
IC2
CP902
IC851
IC1
CP901
TUNER UNIT
CP1101
IC401

Fig. 1-5-4

1.6 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.6.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Remove the Top cover, Front panel assembly and cassette housing assembly. (See Page 1-2, 1-3)
(3) Connect TP1202 (GND) and TP1201 (TEST) on the DISPLAY board assembly with a jump wire.
(4) Connect VCR to AC.
(5) Press the POWER button.
(6) Select the desired operation modes with the operation buttons or remote controller.

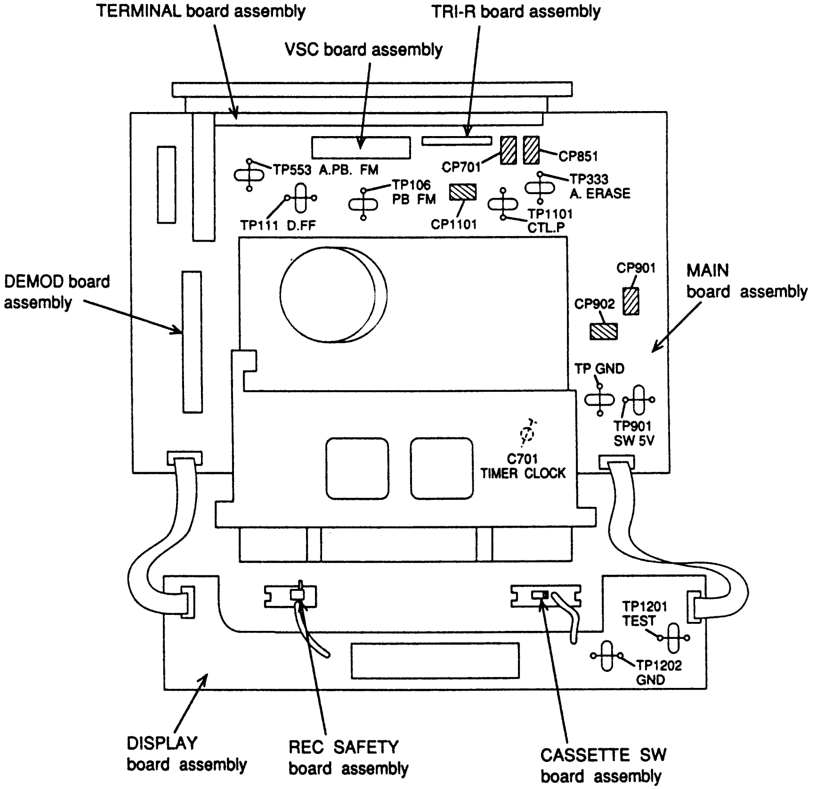

TERMINAL board assembly
TRI-R board assembly
VSC board assembly
TP553 A.PB. FM
CP701
CP851
TP106 PB FM
TP333 A. ERASE
TP111 D.FF
CP1101
TP1101 CTL.P
DEMOD board assembly
CP901
CP902
MAIN board assembly
TP GND
TP901 SW 5V
C701 TIMER CLOCK
TP1201 TEST
TP1202 GND
DISPLAY board assembly
REC SAFETY board assembly
CASSETTE SW board assembly

Fig. 1-6-1

1.7 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.7.1 How to display record of an emergency faults

(1) Press "N" button of the presetting unit more than 2 seconds. and the two previous emergency faults are shown in the FDP.
(2) Press "N" button of the presetting unit again when return the normal mode.

[Example] E : 01 : 03

E : 03 ← Emergency fault before last
E : 01 ← Emergency fault of the last time

[Example] E : — — : — — ← No record of emergency

1.7.2 Detail of emergency faults

FDP	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	TU REEL FG input is absent(for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent(for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP
E : 06	CAPSTAN FG input is absent(for more than 1 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF
E : 08	Initialized action of DD (Dynamic Drum) is not complete for less than 4 seconds.	Connect VCR to AC	STOP
E : 09	DD drive motor is not rotate for more than 2.5 seconds.	on TIME SCAN	STOP

Table 1-7-1 EMERGENCY FAULTS

1.7.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode,and the record of the emergency fault(s) is cleared.

SECTION 2
MECHANISM ADJUSTMENT

PMC 0011A-E or PMC 0011A-M is used in this model.
For the MECHANISM ADJUSTMENT and PARTS LIST, please refer to the MECHANISM ASSEMBLY of the Service Manual (No. 82595).

SECTION 3
ELECTRICAL ADJUSTMENT

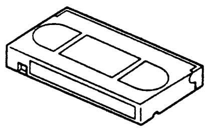
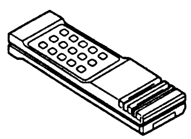
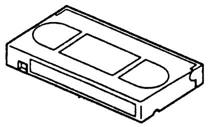
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

① Colour television or monitor
② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
③ Frequency counter
④ Digital voltmeter
⑤ Signal generator: RF/IF sweep/maker
⑥ Signal generator: PAL colour bar, stairstep
⑦ Recording tape
⑧ Numeric remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP,stairstep) MHPE	Presetting unit PTU940008
	
Alignment tape (LP,stairstep) MHPE-L	
	

3.1.3 Colour bar signal,colour bar pattern

- Colour bar signal

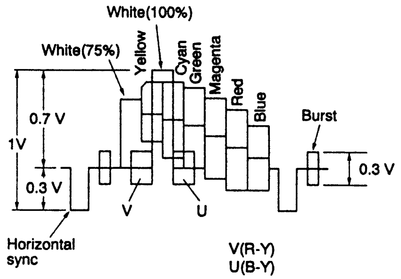

White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1V
0.3 V
0.3 V
V
U
Horizontal sync
V(R-Y)
U(B-Y)

Fig.3-1-1 Colour bar signal waveform

- Colour bar pattern

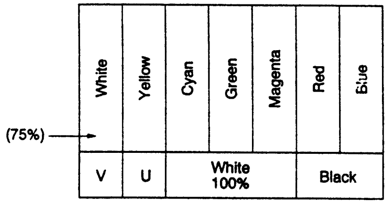

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
V
U
White 100%
Black

Fig.3-1-2 Colour bar pattern

3.2 SERVO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *Set VCR to the mode A by remote controller.*
- *Use only buttons "O", depressing other buttons during adjustment may cause adjustment errors.*

3.2.1 PB switching point

Signal	•Alignment tape [MHPE],Stairstep
Mode	•PB
Equipment	•Oscilloscope
Measurement point	•J1411- pin 19 (VIDEO OUT) [TERMINAL BOARD]
Trigger slope (-)	•TP111(DRUM FF), [PRE/REC BOARD]
Adjustment tool	•Presetting unit [PTU94008]
Specification	•6.5 ± 0.5H

(1) Connect an oscilloscope to J1411- pin 19 (VIDEO OUT) and external trigger from TP111 (negative slope).
(2) Playback the stairstep signal of the alignment tape.
(3) Press the "O" button of the presetting unit.
(4) The adjustment is performed automatically.
Once the adjustment is performed, the VCR will go into the STOP mode.

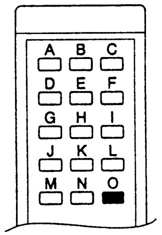


Fig.3-2-1 Presetting unit

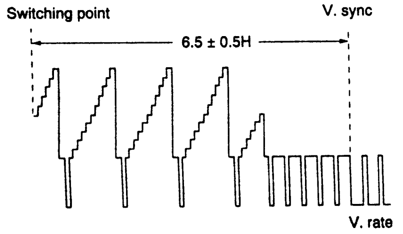


Fig.3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	•Tuner or colour bar
Mode	•SP, REC → PB(SLOW)
Equipment	•TV-Monitor
Adjustment tool	•Presetting unit [PTU94008]
Specification	•Minimum noise

Note : *Set VCR to the mode A by remote controller. Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.*

(1) Record a colour bar signal in the SP mode.
(2) Playback recorded signal on the FWD slow mode.
(3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B " or "C " buttons of the presetting unit.
(4) Depress the STOP button.
(5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
(6) Repeat steps (2) to (5) in the REV slow mode.

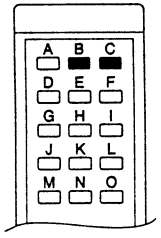


Fig.3-2-3 Presetting unit

3.2.3 Dynamic drum preset

Signal	•Alignment tape [MHPE-L], Stairstep
Mode	•Automatic tracking OFF
Equipment	•Oscilloscope
Measurement point	•TP106 (PB FM)
Trigger slope (–)	•TP111 (DRUM FF)
Adjustment tool	•Presetting unit [PTU94008]
Specification	•FM waveform flat

Note : *Set VCR to the mode A by remote controller.*

(1) Connect an oscilloscope to TP106 and external trigger from TP111 (positive slope).
(2) Playback the LP stairstep portion of the alignment tape at LP 2x mode.
(3) Set the automatic tracking control to the OFF by simultaneously pressing the **////** button on the remote controller.
(4) Adjust for maximum level of playback FM waveform by depressing TV PROG. "+" or "-" buttons.
(5) Adjust by pressing "M+D" or "M+E" buttons of presetting unit for FM waveform is flat as shown in Fig. 3-2-5.
(6) Adjust for half level of playback FM waveform from maximum level by depressing TV PROG. "+" or "-" buttons.
(7) Readjust by pressing "M+D" or "M+E" buttons of presetting unit for FM waveform is flat as shown in Fig. 3-2-5.
(8) Record the color bar signal by LP mode and play it back in FWD slow mode.
(9) Repeat steps (4) and (5).

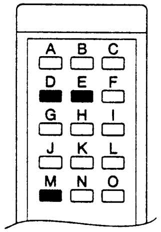


Fig. 3-2-4 Presetting unit

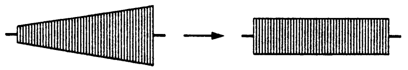


Fig. 3-2-5 PB FM

3.3 VIDEO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *Set VCR to the mode A by remote controller.*

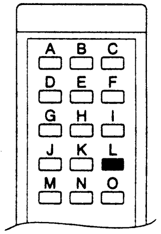


Fig.3-3-1 Presetting unit

3.3.1 Auto picture

Signal	•Monoscope
Mode	•BEST : OFF •REC then PB •SP/LP
Adjustment tool	•Presetting unit[PTU94008]
Specification	•STOP mode

(1) Set the B.E.S.T feature to OFF on MENU screen.
(2) Record a monoscope signal in the SP mode.
(3) Playback the recorded signal.
(4) Press the 'L' button of the presetting unit during playback.
(5) Confirm that VCR will go into the STOP mode.
(6) Repeat steps (2) to (5) in the LP mode.

3.4 SYSCON CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *When perform this adjustment,remove the MECHANISM assembly.*

3.4.1 Timer clock

Signal	•No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•TP702 round(SYS.CLK)
Adjustment part	•C701 (TIMER CLOCK)
Specification	•1024.008 ± 0.001 Hz [976.5549 ± 0.0010 usec]

(1) Connect the frequency counter to TP702 round and GND.
(2) Connect the short wire between TP701 round and Vcc(5V).
(3) Short the leads of capacitor C704 once in order to reset IC701.
(4) Disconnect the short wire then connect it again quickly.
(5) Adjust C701 for 1024.008 ± 0.001 Hz.
(976.5549 ± 0.0010 usec)

3.5 DEMODULATOR CIRCUIT

Note: ***Unless otherwise specified, all measurement points and adjustment parts are located on the DEMODULATOR BOARD.***

3.5.1 STEREO SEPARATION

Signal	• Sweep generator output (90 dBμ, 1 kHz)
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• IC401-pin 4 [MAIN board]
Adjustment part	•VR1501 (SEPARATION)
Specification	• Minimum

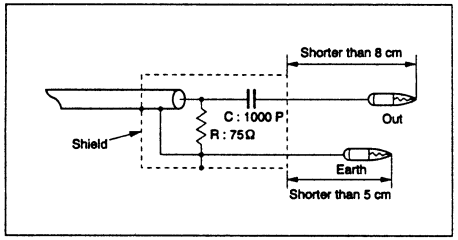

Shorter than 8 cm
C : 1000 P
R : 75Ω
Out
Shield
Earth
Shorter than 5 cm

Fig. 3-5-1 Sweeper probe

(1) Use a sweeper probe as shown in Fig. 3-5-1.
(2) Supply 1 kHz R-only modulated IF signal to IF terminal of U/V tuner (front end).
(3) Connect an oscilloscope to IC401-pin 4.
(4) Adjust VR1501 for minimum output level.

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

> **Safety precautions**
> **The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.**

1. Units of components on the schematic diagram

Unless otherwise specified.

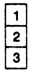
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
Chip resistors are 1/16 W.
K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

2. Indications of control voltage

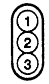
AUX : Active only at high

$\overline{\text{AUX}}$ or AUX(L) : Active at low

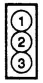
3. Interpreting Connector Indications



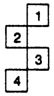
Removable connector



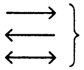
Wire soldered directly on board



Non-removable Board connector



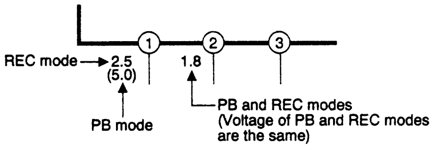
Board to Board



Connected pattern on board

4. Voltage measurement

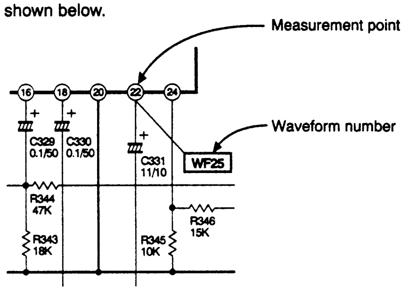
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


1
2
3
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

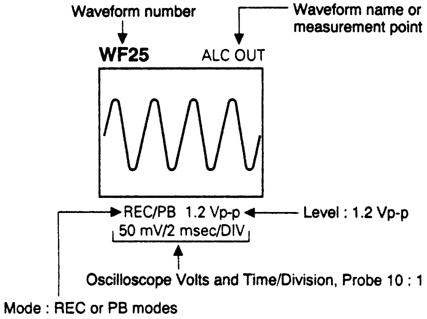
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.


Measurement point
Waveform number
16
18
20
22
24
C329
0.1/50
C330
0.1/50
C331
11/10
WF25
R344
47K
R343
18K
R345
10K
R346
15K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
Level : 1.2 Vp-p
50 mV/2 msec/DIV
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.

⇨ Playback signal path

➡ Playback and recording signal path

➡ Recording signal path
(including E-E signal path)

⇨▷ Capstan servo path

➡▶ Drumo servo path

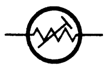
(Example)

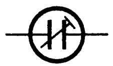
⇨ R-Y Playback R-Y signal path

➡ Y Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.





8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

CIRCUIT BOARD NOTES

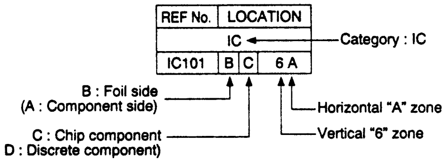
1. Foil and Component sides

1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.

2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

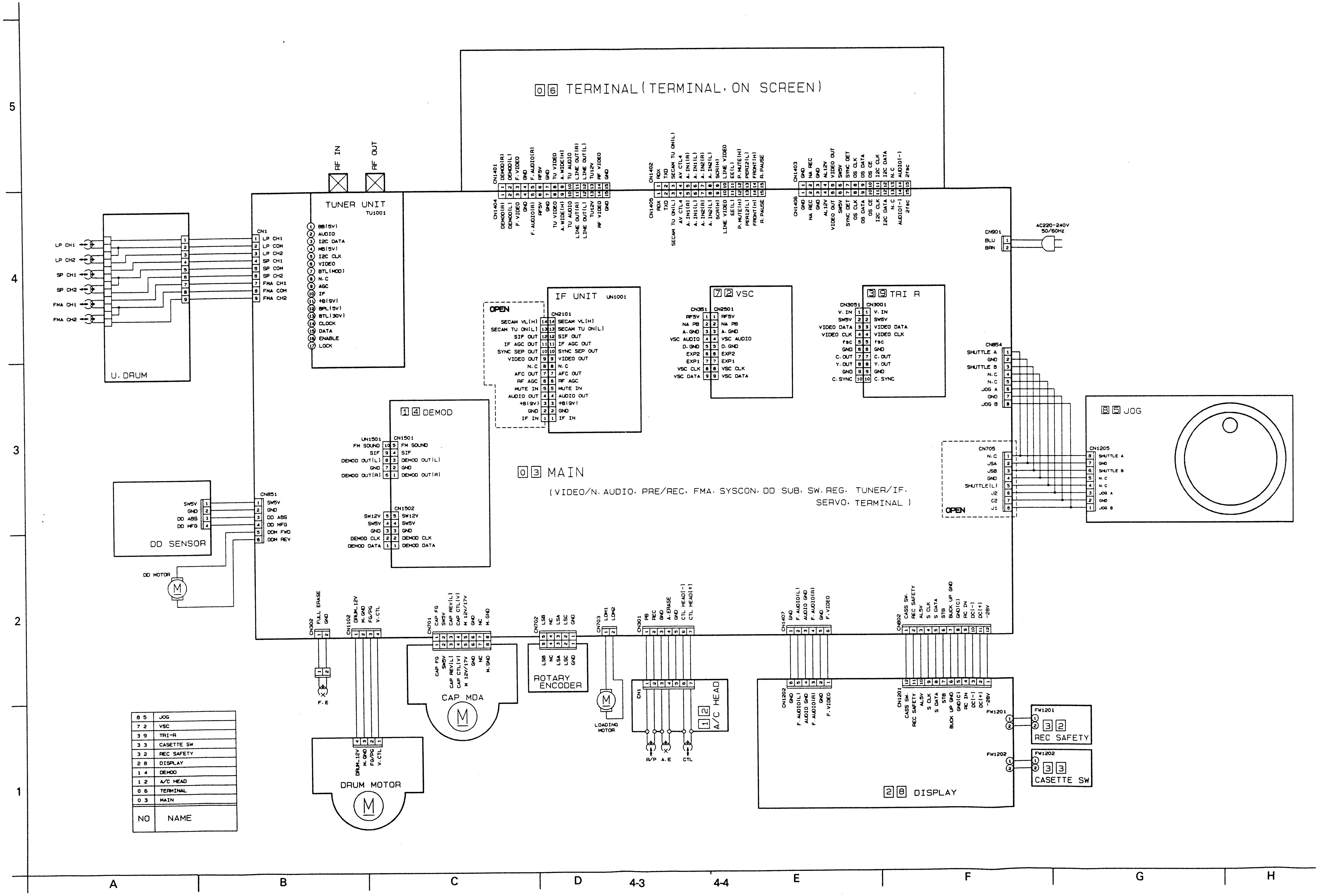
Parts location are indicated by guide scale on the circuit board.


REF No.
LOCATION
IC
Category : IC
IC101
B
C
6 A
B : Foil side
(A : Component side)
C : Chip component
D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

Note:

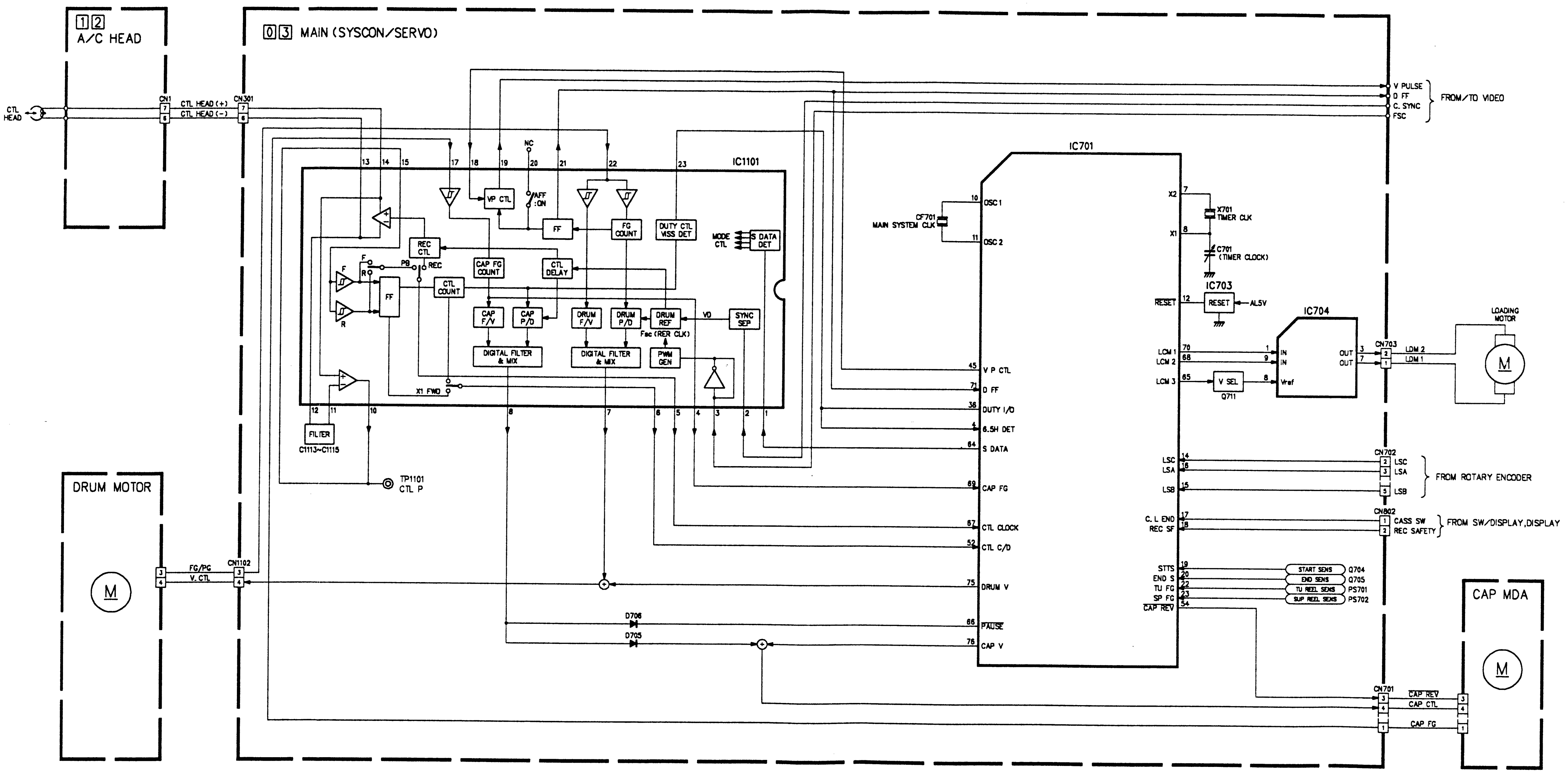
For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS

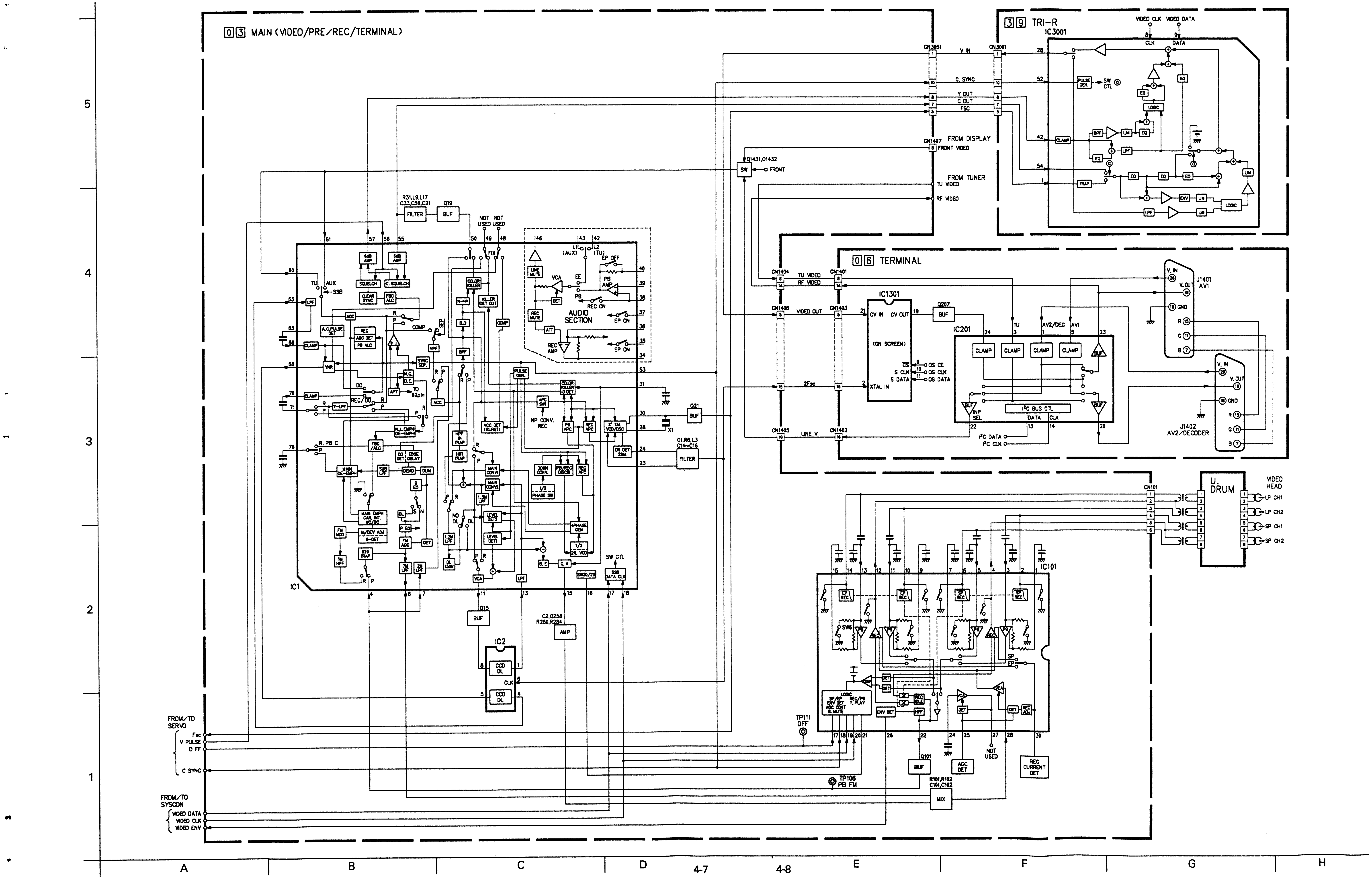

0 6 TERMINAL (TERMINAL, ON SCREEN)
CN1401
DEMOD(R)
DEMOD(L)
F.VIDEO
GND
F.AUDIO(R)
RF5V
GND
TU VIDEO
A.WIDE(H)
TU AUDIO
LINE OUT(R)
LINE OUT(L)
TU12V
RF VIDEO
GND
CN1404
CN1402
RDX
TXD
SECAM TU ON(L)
AV CTL4
A.IN1(R)
A.IN1(L)
A.IN2(R)
A.IN2(L)
SCR(H)
LINE VIDEO
EE(L)
P.MUTE(H)
PERI2(L)
FRONT(H)
R.PAUSE
CN1405
CN1403
GND
NA REC
GND
AL12V
VIDEO OUT
SW5V
SYNC DET
OS CLK
OS DATA
OS CE
I2C CLK
I2C DATA
N.C
AUDIO(-)
2fsc
CN1406
RF IN
RF OUT
TUNER UNIT
TU1001
① BB(5V)
② AUDIO
③ I2C DATA
④ MB(5V)
⑤ I2C CLK
⑥ VIDEO
⑦ BTL(MOD)
⑧ N.C
⑨ AGC
⑩ IF
⑪ +B(9V)
⑫ BPL(5V)
⑬ BTL(30V)
⑭ CLOCK
⑮ DATA
⑯ ENABLE
⑰ LOCK
LP CH1
LP CH2
SP CH1
SP CH2
FMA CH1
FMA CH2
U. DRUM
CN1
LP CH1
LP COM
LP CH2
SP CH1
SP COM
SP CH2
FMA CH1
FMA COM
FMA CH2
CN901
BLU
BRN
AC220-240V 50/60Hz
IF UNIT UN1001
OPEN
CN2101
SECAM VL(H)
SECAM TU ON(L)
SIF OUT
IF AGC OUT
SYNC SEP OUT
VIDEO OUT
N.C
AFC OUT
RF AGC
MUTE IN
AUDIO OUT
+B(9V)
GND
IF IN
7 2 VSC
CN351
CN2501
RF5V
NA PB
A.GND
VSC AUDIO
D.GND
EXP2
EXP1
VSC CLK
VSC DATA
3 9 TRI R
CN3051
CN3001
V.IN
SW5V
VIDEO DATA
VIDEO CLK
fsc
GND
C.OUT
Y.OUT
GND
C.SYNC
1 4 DEMOD
UN1501
CN1501
FM SOUND
SIF
DEMOD OUT(L)
GND
DEMOD OUT(R)
CN1502
SW12V
SW5V
GND
DEMOD CLK
DEMOD DATA
0 3 MAIN
(VIDEO/N.AUDIO, PRE/REC, FMA, SYSCON, DD SUB, SW.REG, TUNER/IF, SERVO, TERMINAL)
DD SENSOR
SW5V
GND
DD ABS
DD MFG
CN851
SW5V
GND
DD ABS
DD MFG
DDM FWD
DDM REV
DD MOTOR
CN854
SHUTTLE A
GND
SHUTTLE B
N.C
N.C
JOG A
GND
JOG B
OPEN
CN705
N.C
JSA
JSB
GND
SHUTTLE(L)
J2
C2
J1
8 5 JOG
CN1205
SHUTTLE A
GND
SHUTTLE B
N.C
N.C
JOG A
GND
JOG B
CN302
FULL ERASE
GND
F.E
CN1102
DRUM_12V
M.GND
FG/PG
V.CTL
DRUM MOTOR
CN701
CAP FG
SW5V
CAP REV(L)
CAP CTL(V)
M 12V/17V
GND
NC
M.GND
CAP MDA
CN702
LSB
NC
LSA
LSC
GND
ROTARY ENCODER
CN703
LDM1
LDM2
LOADING MOTOR
CN301
PB
REC
GND
A.ERASE
GND
CTL HEAD(-)
CTL HEAD(+)
CN1
1 2 A/C HEAD
R/P
A.E
CTL
CN1407
GND
F.AUDIO(L)
AUDIO GND
F.AUDIO(R)
GND
F.VIDEO
CN1202
CN802
CASS SW.
REC SAFETY
AL5V
S CLK
S DATA
STB
BUCK UP GND
GND(C)
RC IN
DC(-)
DC(+)
-28V
CN1201
2 8 DISPLAY
FW1201
3 2 REC SAFETY
FW1202
3 3 CASETTE SW
M
A
B
C
D
E
F
G
H
1
2
3
4
5

NO	NAME
8 5	JOG
7 2	VSC
3 9	TRI-R
3 3	CASETTE SW
3 2	REC SAFETY
2 8	DISPLAY
1 4	DEMOD
1 2	A/C HEAD
0 6	TERMINAL
0 3	MAIN

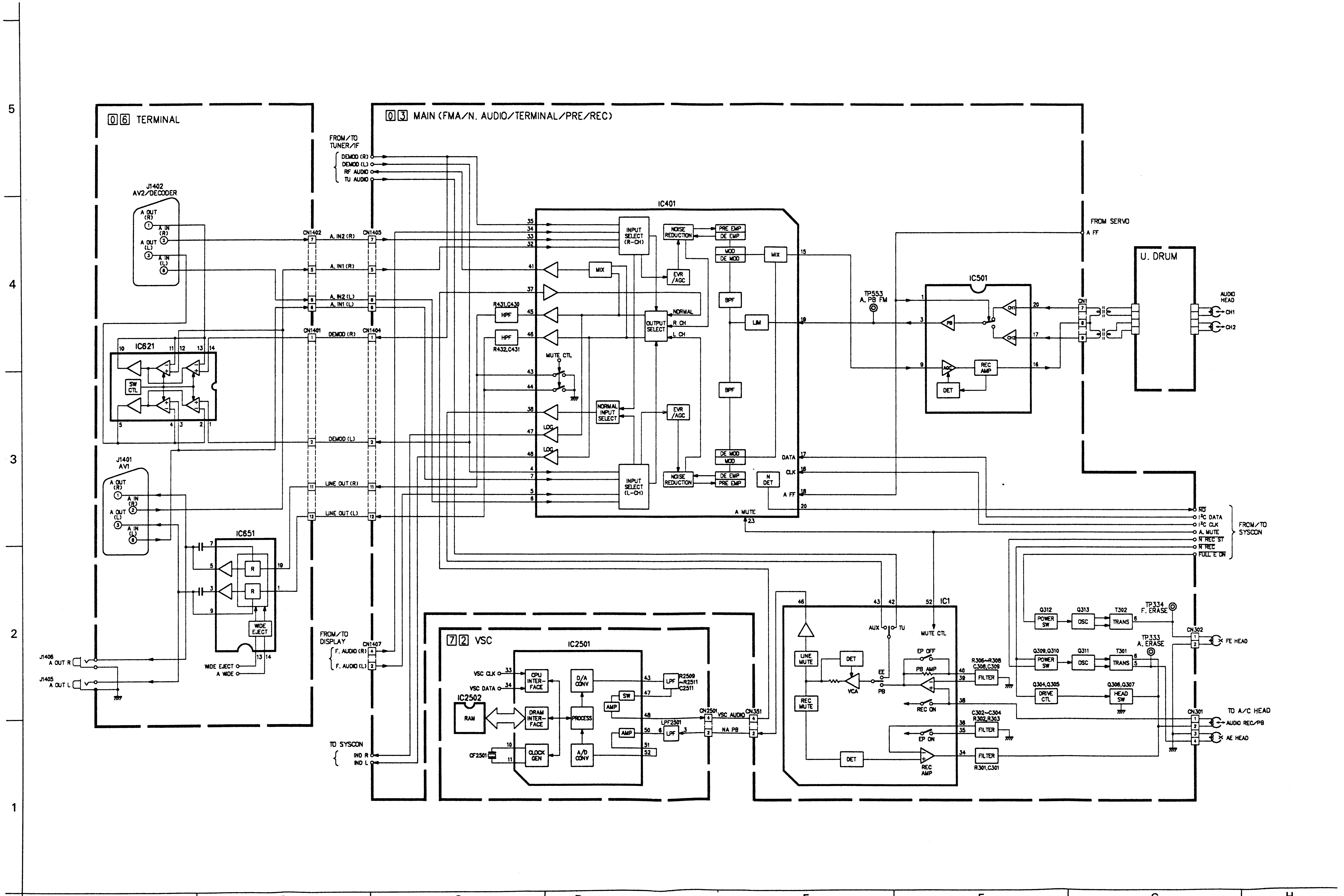
4.2 SYSTEM CONTROL BLOCK DIAGRAM


1 2 A/C HEAD
CTL HEAD
CN1
CTL HEAD (+)
CTL HEAD (−)
CN301
0 3 MAIN (SYSCON/SERVO)
IC1101
13 14 15 17 18 19 20 21 22 23
NC
VP CTL
AFF :ON
FF
FG COUNT
DUTY CTL VISS DET
MODE CTL
S DATA DET
REC CTL
F
R
PB
REC
CAP FG COUNT
CTL DELAY
CTL COUNT
CAP F/V
CAP P/D
DRUM F/V
DRUM P/D
DRUM REF
VD
SYNC SEP
Fsc (RER CLK)
DIGITAL FILTER & MIX
DIGITAL FILTER & MIX
PWM GEN
X1 FWD
12 11 10 8 7 6 5 4 3 2 1
FILTER
C1113~C1115
TP1101
CTL P
DRUM MOTOR
M
FG/PG
V. CTL
CN1102
D706
D705
IC701
CF701
MAIN SYSTEM CLK
10 OSC 1
11 OSC 2
45 V P CTL
71 D FF
36 DUTY I/O
4 6.5H DET
64 S DATA
69 CAP FG
67 CTL CLOCK
52 CTL C/D
75 DRUM V
66 PAUSE
76 CAP V
X2 7
X1 8
X701 TIMER CLK
C701 (TIMER CLOCK)
IC703
RESET 12
RESET
AL5V
IC704
LCM 1 70
LCM 2 68
LCM 3 65
V SEL
Q711
1 IN
9 IN
8 Vref
OUT 3
OUT 7
CN703
LDM 2
LDM 1
LOADING MOTOR
M
V PULSE
D FF
C. SYNC
FSC
FROM/TO VIDEO
LSC 14
LSA 16
LSB 15
CN702
2 LSC
3 LSA
5 LSB
FROM ROTARY ENCODER
C. L END 17
REC SF 18
CN802
1 CASS SW
2 REC SAFETY
FROM SW/DISPLAY,DISPLAY
STTS 19
END S 20
TU FG 22
SP FG 23
CAP REV 54
START SENS Q704
END SENS Q705
TU REEL SENS PS701
SUP REEL SENS PS702
CAP MDA
M
CN701
CAP REV
CAP CTL
CAP FG
5
4
3
2
1
A
B
C
D
E
F
G
H

4.3 VIDEO BLOCK DIAGRAM

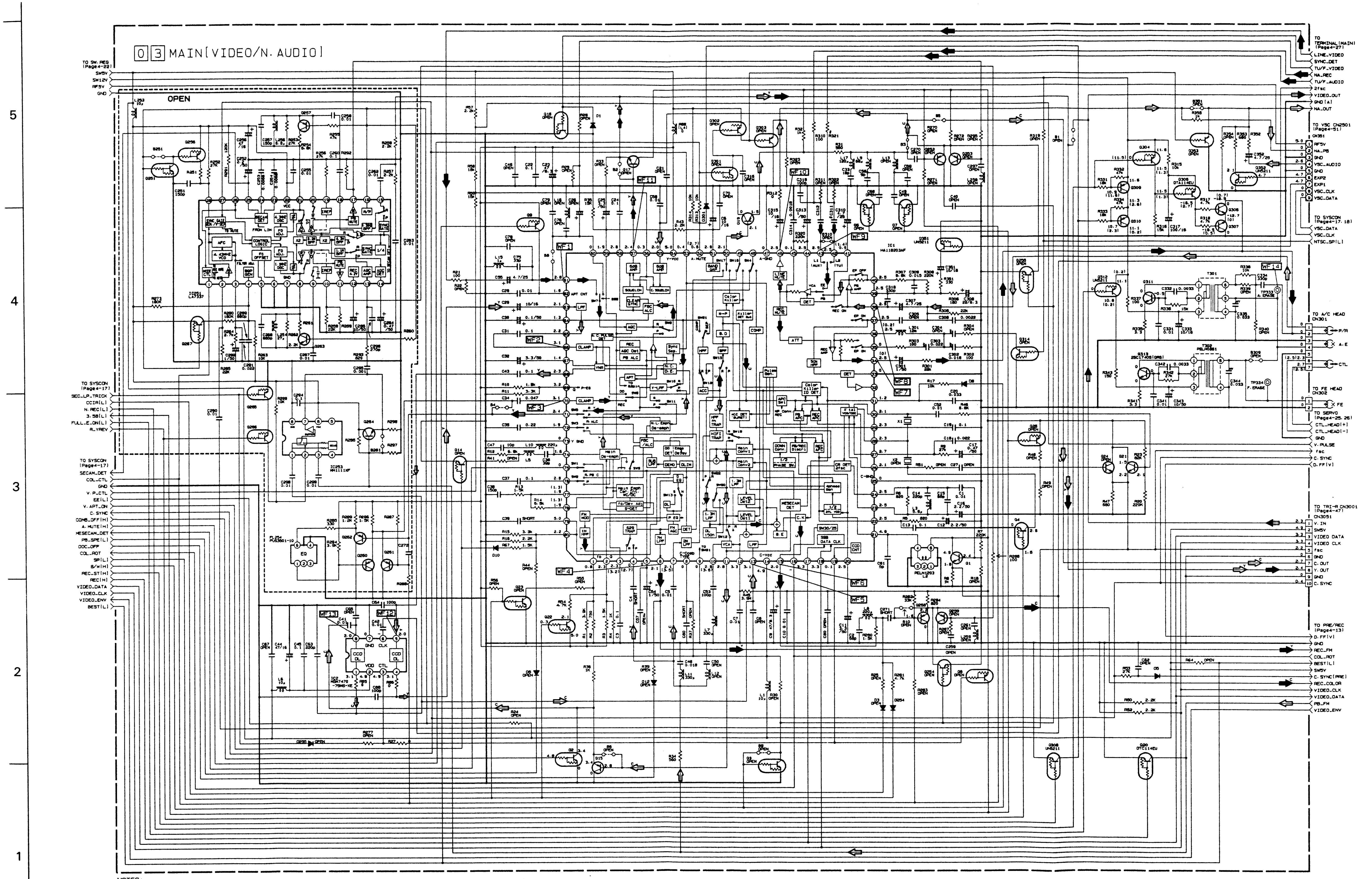

03 MAIN (VIDEO/PRE/REC/TERMINAL)
39 TRI-R
IC3001
VIDEO CLK
VIDEO DATA
CLK
DATA
CN3051
CN3001
V IN
C. SYNC
Y OUT
C OUT
FSC
PULSE GEN.
SW CTL
EQ
LOGIC
CLAMP
BPF
LIM
LPF
TRAP
ENV
CN1407
FROM DISPLAY
FRONT VIDEO
Q1431,Q1432
SW
FRONT
FROM TUNER
TU VIDEO
RF VIDEO
06 TERMINAL
CN1404
CN1401
CN1406
CN1403
CN1405
CN1402
VIDEO OUT
2Fsc
LINE V
IC1301
CV IN
CV OUT
(ON SCREEN)
CS
S CLK
S DATA
XTAL IN
OS CE
OS CLK
OS DATA
Q207
BUF
IC201
TU
AV2/DEC
AV1
INP SEL
I²C BUS CTL
I²C DATA
I²C CLK
J1401
AV1
V. IN
V. OUT
GND
R
G
B
J1402
AV2/DECODER
U. DRUM
VIDEO HEAD
LP CH1
LP CH2
SP CH1
SP CH2
CN101
IC101
EP REC
SP REC
SWB
SP
EP
DET
REC SOLE
LOGIC
SP/EP ENV DET AGC CONT R. MUTE
REC/PB T. PLAY
ENV DET
HPF
VCA
REC ADJ
NOT USED
TP111 DFF
TP106 PB FM
Q101
BUF
AGC DET
REC CURRENT DET
R101,R102 C101,C102
MIX
R31,L9,L17 C33,C56,C21
FILTER
Q19
NOT USED
TU
AUX
SSB
6dB AMP
SQUELCH
C. SQUELCH
CLEAR SYNC
FBC ALC
AGC
A.C.PULSE DET
REC AGC DET PB ALC
COMP
SEP
CLAMP
YNR
SYNC SEP.
N.C.
D.E.
APT
TO 62pin
DO
REC/DO
Y-LPF
N.L.EMPH DE-EMPH
R. PB C
FBC /ALC
DO DET
EDGE DELAY
MAIN DE-EMPH
SUB LPF
DEMO
DLIM
& EQ
MAIN EMPH CAR. INT. WC/DC
fo/DEV ADJ S-DET
FM MOD
FM AGC
1M HPF
629 TRAP
7M LPF
2M LPF
COLOR KILLER
KILLER DET OUT
N→P
B.D
BPF
ACC
HPF fn TRAP
HIFI TRAP
MAIN CONV1
MAIN CONV2
1.3M LPF
NO DL
LEVEL DET2
LEVEL DET1
DL 150N
VCA
PULSE GEN.
ACC DET (BURST)
COLOR KILLER ID DET
APC SW1
NP CONV. REC
PB APC
REC APC
X' TAL VCO/OSC
CR DET 2fsc
DOWN CONV.
PB/REC DISCRI
REC AFC
1/2 PHASE SW
4PHASE GEN
1/2 2fL VCO
B. E
C. K
SW38/25
SSB DATA CLK
SW CTL
LPF
AUDIO SECTION
LINE MUTE
VCA
EE
PB
PB AMP
EP OFF
REC ON
EP ON
REC MUTE
ATT
REC AMP
L1 (AUX)
L2 (TU)
FIX
Q21
X1
Q1,R6,L3 C14~C16
IC1
Q15
IC2
CCD DL
CLK
C2,Q258 R280,R284
AMP
FROM/TO SERVO
Fsc
V PULSE
D FF
C SYNC
FROM/TO SYSCON
VIDEO DATA
VIDEO CLK
VIDEO ENV
A
B
C
D
E
F
G
H
1
2
3
4
5

4.4 AUDIO BLOCK DIAGRAM



06 TERMINAL
03 MAIN (FMA/N. AUDIO/TERMINAL/PRE/REC)
FROM/TO TUNER/IF
DEMOD (R)
DEMOD (L)
RF AUDIO
TU AUDIO
J1402 AV2/DECODER
A OUT (R)
A IN (R)
A OUT (L)
A IN (L)
IC621
SW CTL
J1401 AV1
IC651
WIDE EJECT
WIDE EJECT
A WIDE
J1406 A OUT R
J1405 A OUT L
CN1402
CN1405
CN1401
CN1404
A. IN2 (R)
A. IN1 (R)
A. IN2 (L)
A. IN1 (L)
DEMOD (R)
DEMOD (L)
LINE OUT (R)
LINE OUT (L)
FROM/TO DISPLAY
CN1407
F. AUDIO (R)
F. AUDIO (L)
TO SYSCON
IND R
IND L
IC401
INPUT SELECT (R-CH)
NOISE REDUCTION
PRE EMP
DE EMP
MOD
DE MOD
MIX
EVR /AGC
BPF
LIM
OUTPUT SELECT
NORMAL
R CH
L CH
R431,C430
R432,C431
HPF
MUTE CTL
NORMAL INPUT SELECT
LOG
INPUT SELECT (L-CH)
N DET
DATA
CLK
A FF
A MUTE
FROM SERVO
A FF
TP553 A. PB FM
IC501
PB
CH1
CH2
AGC
REC AMP
DET
U. DRUM
AUDIO HEAD
CH1
CH2
CN1
ND
I²C DATA
I²C CLK
A. MUTE
N REC ST
N REC
FULL E ON
FROM/TO SYSCON
IC1
AUX
TU
MUTE CTL
LINE MUTE
DET
VCA
EE
PB
EP OFF
PB AMP
REC ON
REC MUTE
EP ON
REC AMP
R306~R308 C308,C309
FILTER
C302~C304 R302,R303
R301,C301
Q312
POWER SW
Q313
OSC
T302
TRANS
TP334 F. ERASE
Q309,Q310
Q311
T301
TP333 A. ERASE
Q304,Q305
DRIVE CTL
Q306,Q307
HEAD SW
CN302
FE HEAD
CN301
TO A/C HEAD
AUDIO REC/PB
AE HEAD
72 VSC
IC2501
VSC CLK
VSC DATA
CPU INTER-FACE
D/A CONV
SW
AMP
IC2502
RAM
DRAM INTER-FACE
PROCESS
CLOCK GEN
A/D CONV
CF2501
LPF
R2509 ~R2511 C2511
LPF2501
CN2501
VSC AUDIO
CN351
NA PB

4.5 VIDEO AND N. AUDIO SCHEMATIC DIAGRAM


03 MAIN[VIDEO/N. AUDIO]
TO SW. REG (Page4-22)
SW5V
SW12V
RF5V
GND
OPEN
IC251 LA7337
IC253 MM1111XF
IC2 MSM7476-79MS-KE
IC1 HA118203AF
TO SYSCON (Page4-17)
SEC_LP_TRICK
CCIR(L)
N. REC(L)
3.58(L)
FULL_E_ON(L)
R_YREV
TO SYSCON (Page4-17)
SECAM_DET
COL_CTL
GND
V. P_CTL
EE(L)
V. APT_ON
C. SYNC
COMB_OFF(H)
A. MUTE(H)
MESECAM_DET
PB_SPE(L)
DOC_OFF
COL_ROT
SP(L)
B/W(H)
REC_ST(H)
REC(H)
VIDEO_DATA
VIDEO_CLK
VIDEO_ENV
BEST(L)
TO TERMINAL(MAIN) (Page4-27)
LINE_VIDEO
SYNC_DET
TU/F_VIDEO
NA_REC
TU/F_AUDIO
2fsc
VIDEO_OUT
GND(A)
NA_OUT
TO VSC CN2501 (Page4-51)
CN351
RF5V
NA_PB
GND
VSC_AUDIO
GND
EXP2
EXP1
VSC_CLK
VSC_DATA
TO SYSCON (Page4-17, 18)
VSC_DATA
VSC_CLK
NTSC_SP(L)
TO A/C HEAD CN301
P/R
A. E
CTL
TO FE HEAD CN302
FE
TO SERVO (Page4-25, 26)
CTL_HEAD(+)
CTL_HEAD(-)
GND
V. PULSE
fsc
C. SYNC
D. FF(V)
TO TRI-R CN3001 (Page4-47)
CN3051
V. IN
SW5V
VIDEO DATA
VIDEO CLK
fsc
GND
C. OUT
Y. OUT
GND
C. SYNC
TO PRE/REC (Page4-13)
D. FF(V)
GND
REC_FM
COL_ROT
BEST(L)
SW5V
C. SYNC(PRE)
REC_COLOR
VIDEO_CLK
VIDEO_DATA
PB_FM
VIDEO_ENV
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
WF14
TP333 A. ERASE
TP334 F. ERASE
T301
T302 PELM0861
A
B
C
D
E
F
G
H
1
2
3
4
5

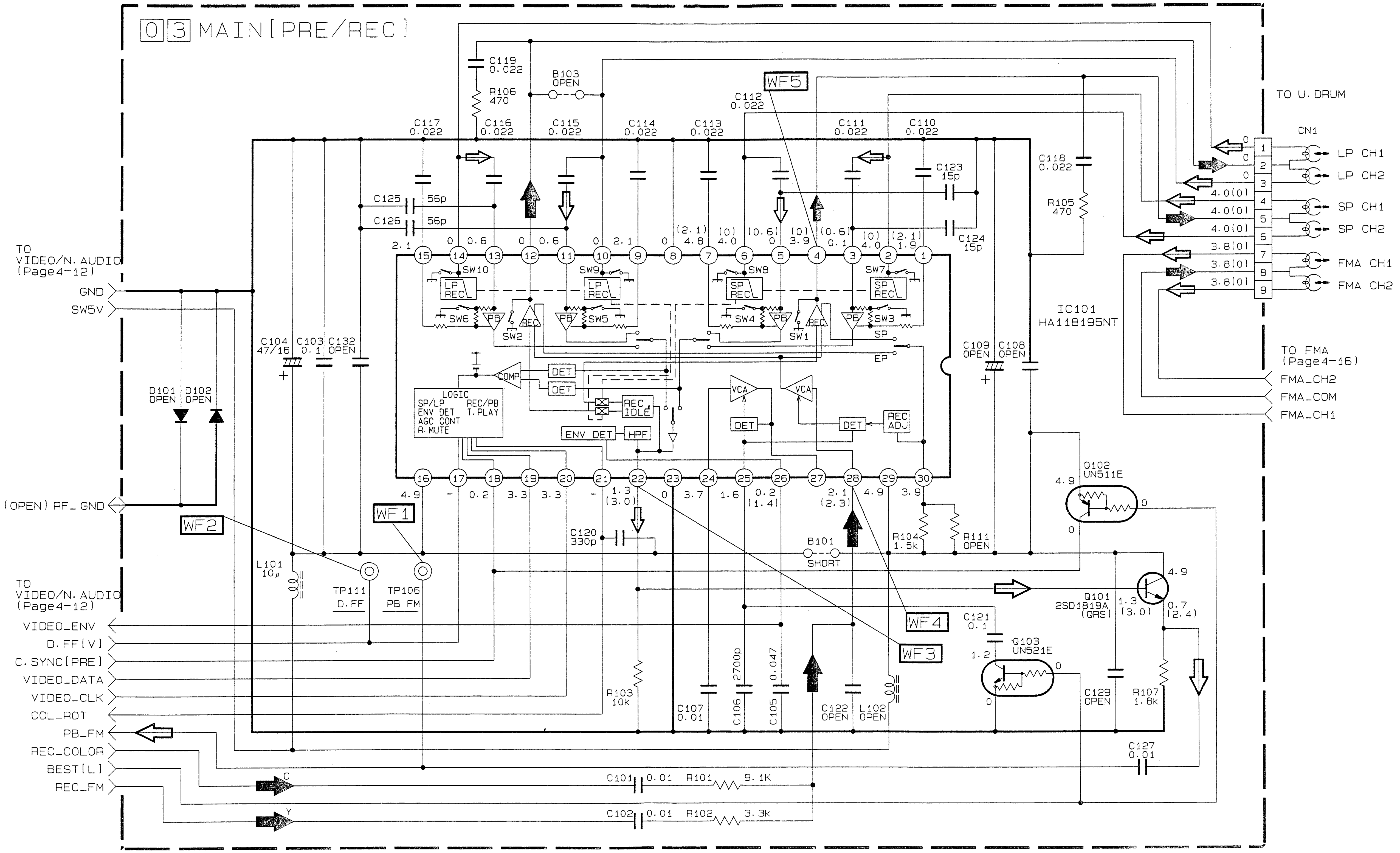
NOTES:

1. Unless otherwise specified.
   All NPN type transistors are 2SD1819A(QRS).
   All PNP type transistors are 2SB1218A(QR).
   All NPN type digital transistors are UN521E.
   All PNP type digital transistors are UN511E.
   All diodes are 1N4148M.
2. For VIDEO/N. AUDIO waveforms, please refer to page4-32.

3. COMPARISON CHART OF MODELS & MARKS(#)

REF. No.	MODELS	
	HR-DD949E	HR-DD949EH
R321	OPEN	0
C311	OPEN	0.033

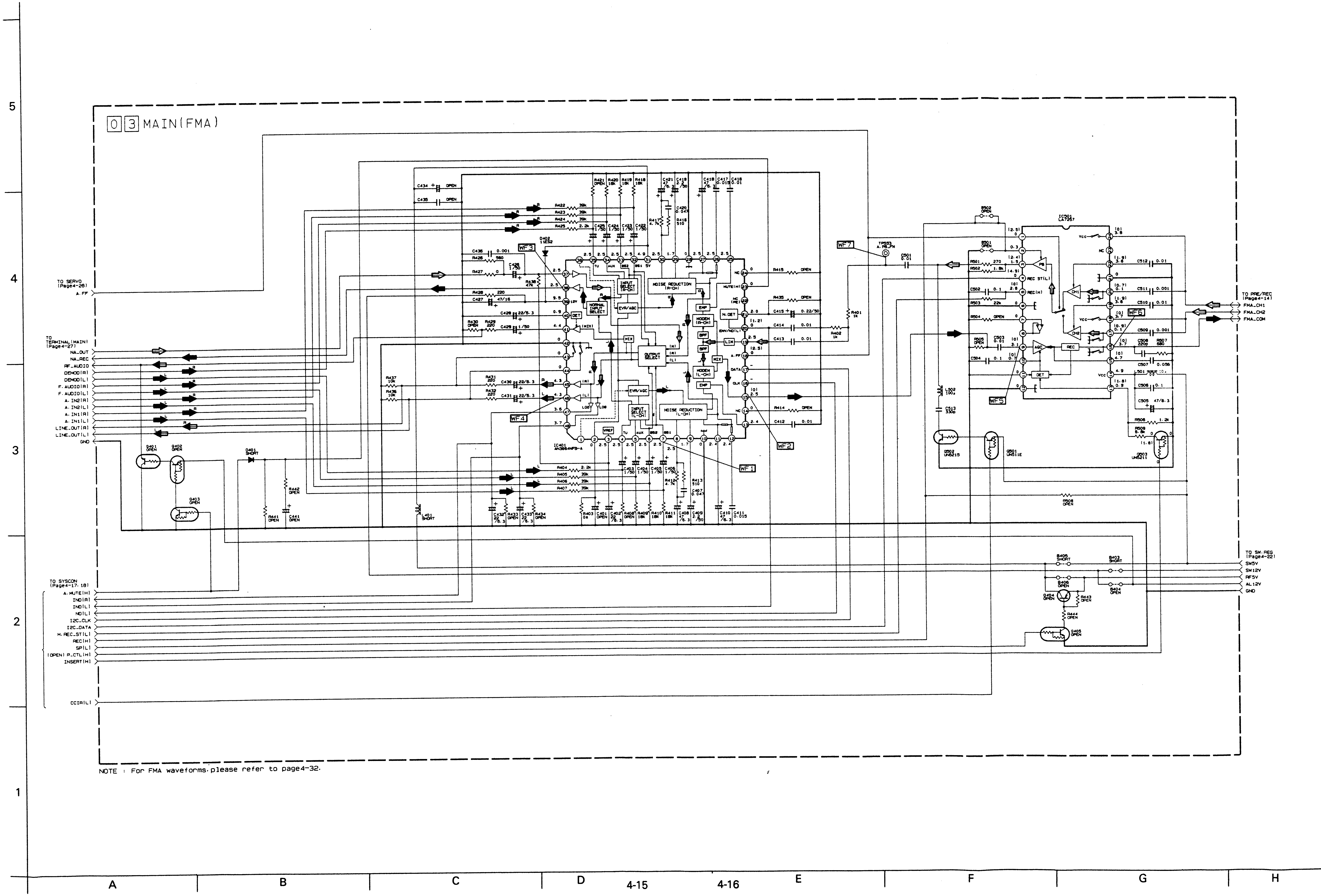
4.6 PRE/REC SCHEMATIC DIAGRAM



03 MAIN[PRE/REC]
TO VIDEO/N. AUDIO (Page4-12)
GND
SW5V
(OPEN) RF_GND
TO VIDEO/N. AUDIO (Page4-12)
VIDEO_ENV
D. FF[V]
C. SYNC[PRE]
VIDEO_DATA
VIDEO_CLK
COL_ROT
PB_FM
REC_COLOR
BEST[L]
REC_FM
TO U. DRUM
CN1
LP CH1
LP CH2
SP CH1
SP CH2
FMA CH1
FMA CH2
TO FMA (Page4-16)
FMA_CH2
FMA_COM
FMA_CH1
IC101
HA118195NT
Q101
2SD1819A (QRS)
Q102
UN511E
Q103
UN521E
WF1
WF2
WF3
WF4
WF5
TP111 D.FF
TP106 PB FM
C119 0.022
R106 470
B103 OPEN
C117 0.022
C116 0.022
C115 0.022
C114 0.022
C113 0.022
C112 0.022
C111 0.022
C110 0.022
C123 15p
C124 15p
C125 56p
C126 56p
C118 0.022
R105 470
C104 47/16
C103 0.1
C132 OPEN
D101 OPEN
D102 OPEN
L101 10μ
C109 OPEN
C108 OPEN
C120 330p
B101 SHORT
R104 1.5k
R111 OPEN
C121 0.1
R103 10k
C107 0.01
C106 2700p
C105 0.047
C122 OPEN
L102 OPEN
C129 OPEN
R107 1.8k
C127 0.01
C101 0.01
R101 9.1K
C102 0.01
R102 3.3K
LOGIC
SP/LP
ENV DET
AGC CONT
A. MUTE
REC/PB
T. PLAY
COMP
DET
REC IDLE
ENV DET
HPF
VCA
REC ADJ
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
LP REC
SP REC
PB
REC
SP
EP

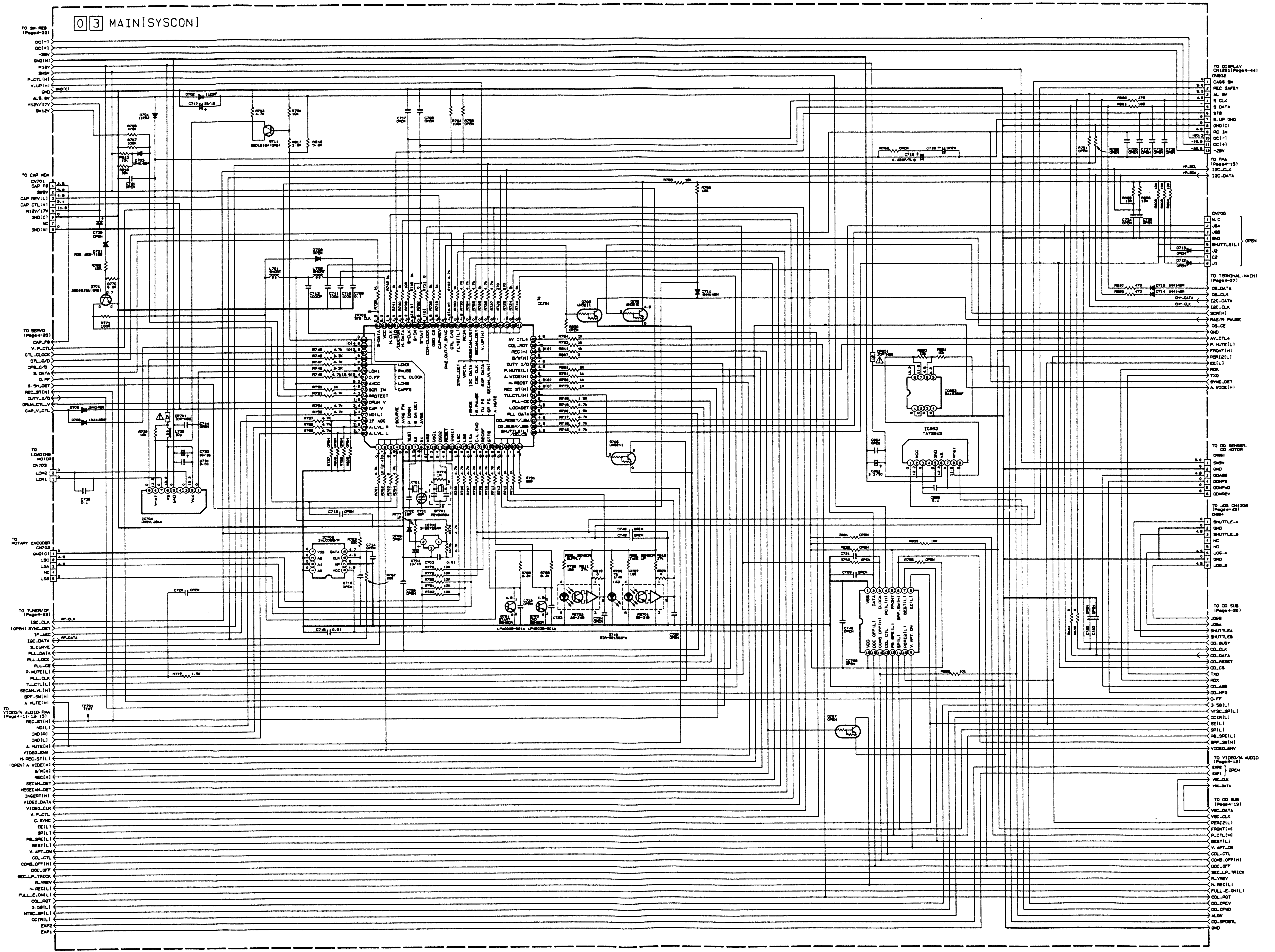
NOTE : For PRE/REC waveforms, please refer to page4-32.

4.7 FMA SCHEMATIC DIAGRAM


03 MAIN(FMA)
TO SERVO (Page4-26)
A.FF
TO TERMINAL(MAIN) (Page4-27)
NA_OUT
NA_REC
RF_AUDIO
DEMOD(R)
DEMOD(L)
F.AUDIO(R)
F.AUDIO(L)
A.IN2(R)
A.IN2(L)
A.IN1(R)
A.IN1(L)
LINE_OUT(R)
LINE_OUT(L)
GND
TO SYSCON (Page4-17.18)
A.MUTE(H)
IND(R)
IND(L)
NO(L)
I2C_CLK
I2C_DATA
H.REC_ST(L)
REC(H)
SP(L)
(OPEN) P_CTL(H)
INSERT(H)
CCIR(L)
TO PRE/REC (Page4-14)
FMA_CH1
FMA_CH2
FMA_COM
TO SW.REG (Page4-22)
SW5V
SW12V
RF5V
AL12V
GND
IC401 AN3664NFB-A
IC501 LA7257
NOISE REDUCTION (R-CH)
NOISE REDUCTION (L-CH)
INPUT SELECT (R-CH)
INPUT SELECT (L-CH)
NORMAL INPUT SELECT
OUTPUT SELECT
EVR/AGC
MODEM (R-CH)
MODEM (L-CH)
N.DET
VREF
DET
MIX
LIM
BPF
EMP
REC
AGC
PB
CH1
CH2
WF1
WF2
WF3
WF4
WF5
WF6
WF7
TP503 A.PB_FM
Q401 OPEN
Q402 OPEN
Q403 OPEN
Q404 OPEN
Q405 OPEN
Q501 UN511E
Q502 UN5215
Q503 UN5211
D401 SHORT
D402 1SS352
L401 SHORT
L501
L502 100μ
B401 OPEN
B402 OPEN
B403 SHORT
B404 OPEN
B405 SHORT
B406 OPEN
A
B
C
D
E
F
G
H
1
2
3
4
5

NOTE : For FMA waveforms.please refer to page4-32.

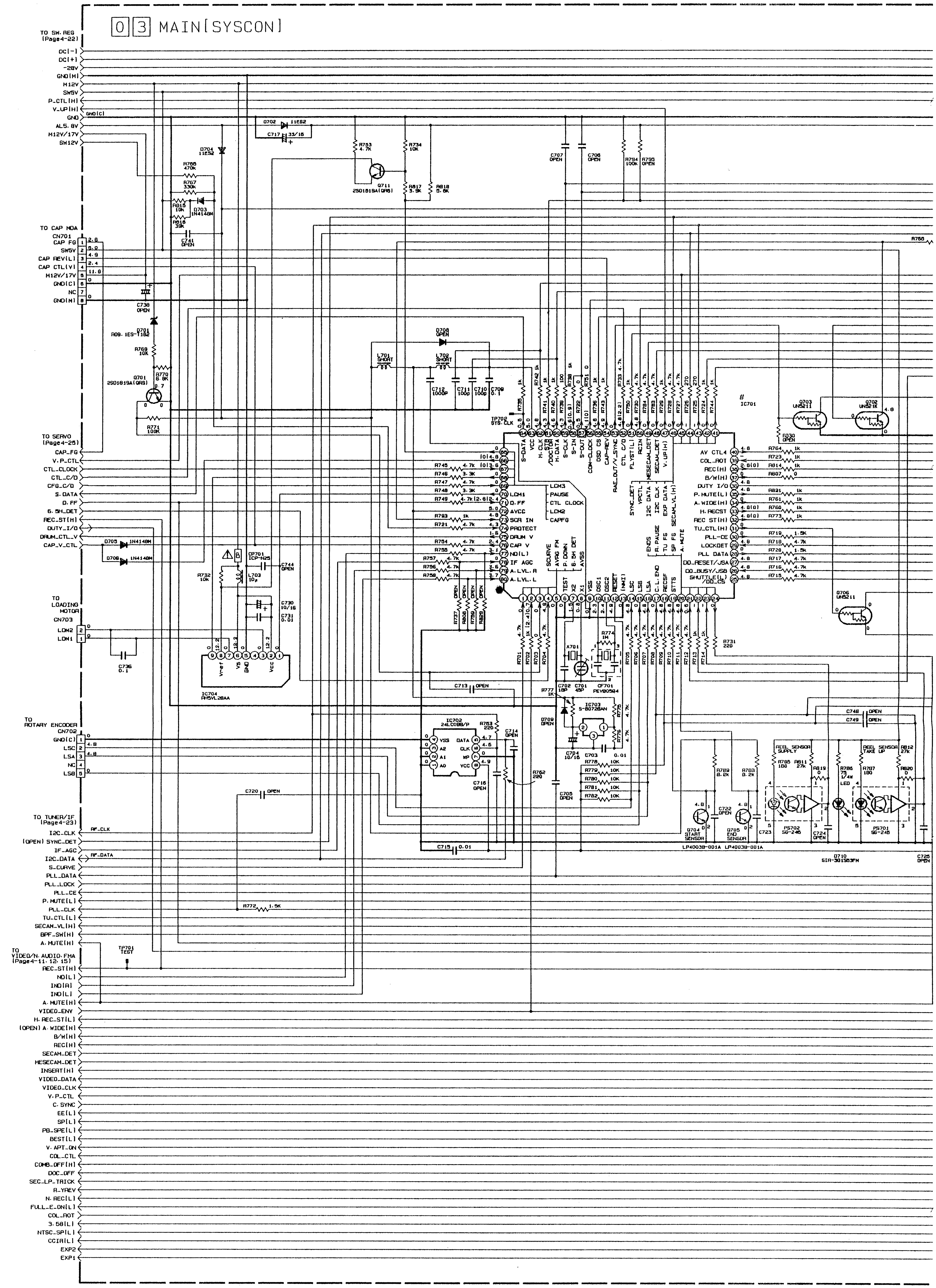
4.8 SYSTEM CONTROL SCHEMATIC DIAGRAM


03 MAIN[SYSCON]
TO SW. REG (Page4-22)
DC(-1)
DC(+1)
-28V
GND(M)
M12V
SW5V
P_CTL(H)
V_UP(H)
GND
AL5. 8V
M12V/17V
SW12V
TO CAP MDA
CN701
CAP FG
SW5V
CAP REV(L)
CAP CTL(V)
M12V/17V
GND(C)
NC
GND(M)
TO SERVO (Page4-25)
CAP_FG
V.P_CTL
CTL_CLOCK
CTL_C/D
CFG_C/D
S. DATA
D. FF
S. SW_DET
REC_ST(H)
DUTY_I/O
DRUM_CTL_V
CAP_V_CTL
TO LOADING MOTOR
CN703
LDM2
LDM1
IC704
TO ROTARY ENCODER
CN702
TO TUNER/IF (Page4-23)
I2C_CLK
SYNC_DET
IF_AGC
I2C_DATA
S_CURVE
PLL_DATA
PLL_LOCK
PLL_CE
P. MUTE(L)
PLL_CLK
TU_CTL(L)
SECAM_V(H)
BPF_SW(H)
A. MUTE(H)
TO VIDEO/H. AUDIO·FMA
REC_ST(H)
ND(L)
IND(R)
IND(L)
A. MUTE(H)
VIDEO_ENV
H. REC_ST(L)
A. WIDE(H)
B/W(H)
REC(H)
SECAM_DET
MESECAM_DET
INSERT(H)
VIDEO_DATA
VIDEO_CLK
V. P_CTL
C. SYNC
EE(L)
SP(L)
PB_SPE(L)
BEST(L)
V. APT_ON
COL_CTL
COMB_OFF(H)
DOC_OFF
SEC_LP_TRICK
PL.YREV
N. REC(L)
FULL_E_ON(L)
COL_ROT
3. 58(L)
NTSC_SP(L)
CCIR(L)
EXP2
EXP1
IC701
IC702
IC703
IC705
IC852
IC853
TO DISPLAY CN1201(Page4-44)
CN802
CASS SW
REC SAFEY
AL 5V
S CLK
S DATA
STB
B. UP GND
GND(C)
RC IN
DC(-)
DC(+)
-28V
TO FMA (Page4-15)
I2C_CLK
I2C_DATA
CN705
N. C
JSA
JSB
GND
SHUTTLE(L)
J2
C2
J1
OPEN
TO TERMINAL(MAIN) (Page4-27)
OS_DATA
OS_CLK
I2C_DATA
I2C_CLK
SCR(H)
RAE/R. PAUSE
OS_CE
GND
AV_CTL4
P. MUTE(L)
FRONT(H)
PERI2(L)
EE(L)
RDX
TXD
SYNC_DET
A. WIDE(H)
TO DD SENSER. DD MOTOR
CN851
SW5V
GND
TO JOG CN1205 (Page4-43)
TO DD SUB (Page4-20)
TO VIDEO/H. AUDIO (Page4-12)
TO DD SUB (Page4-19)

NOTE: COMPARISON CHART OF MODELS & MARKS(#)

MODELS \ REF. No.	IC701
HR-D0949E	HD6433929TA91F
HR-D0949EH	HD6433929TA77F

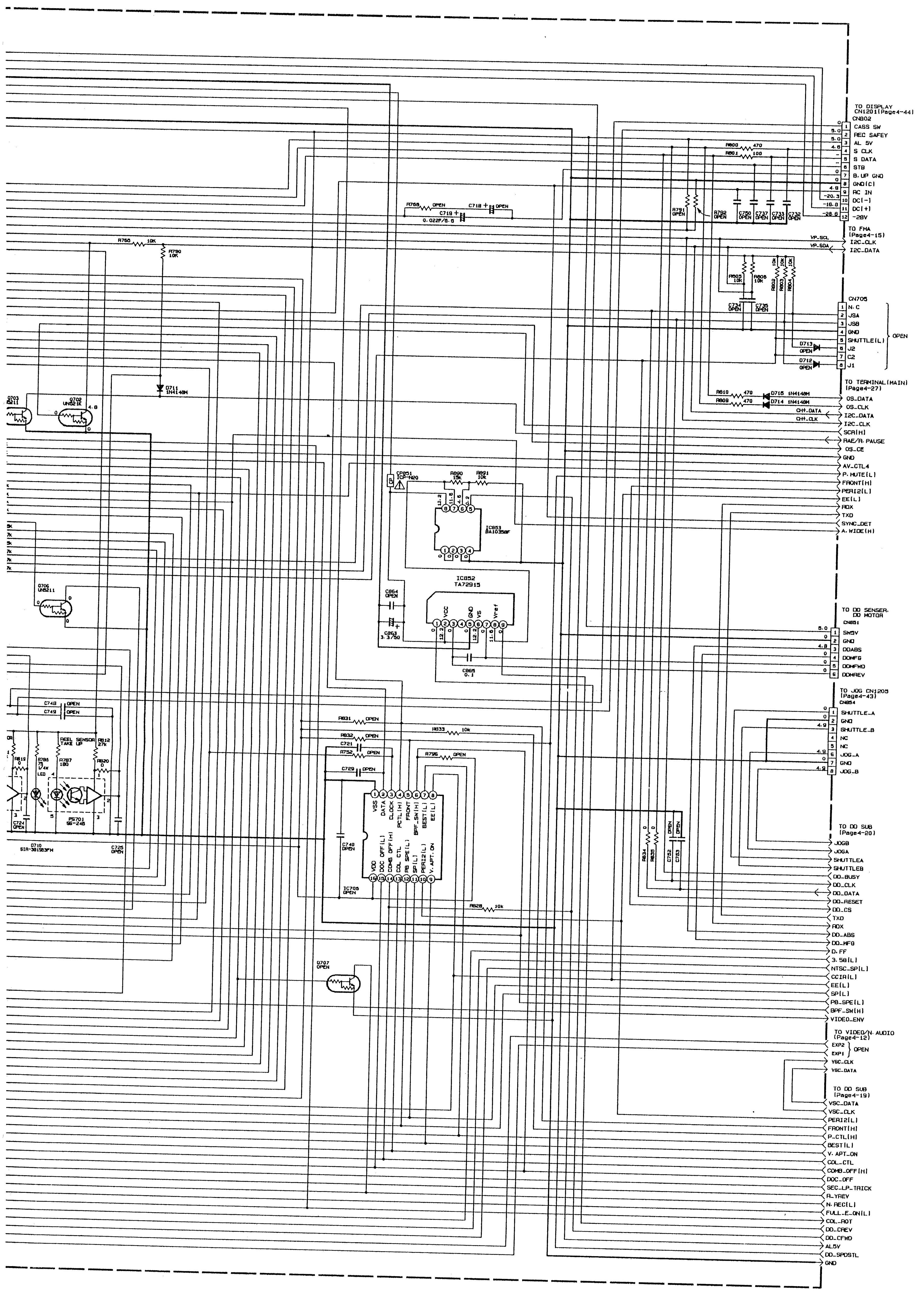
4.8 SYSTEM CONTROL SCHEMATIC DIAGRAM



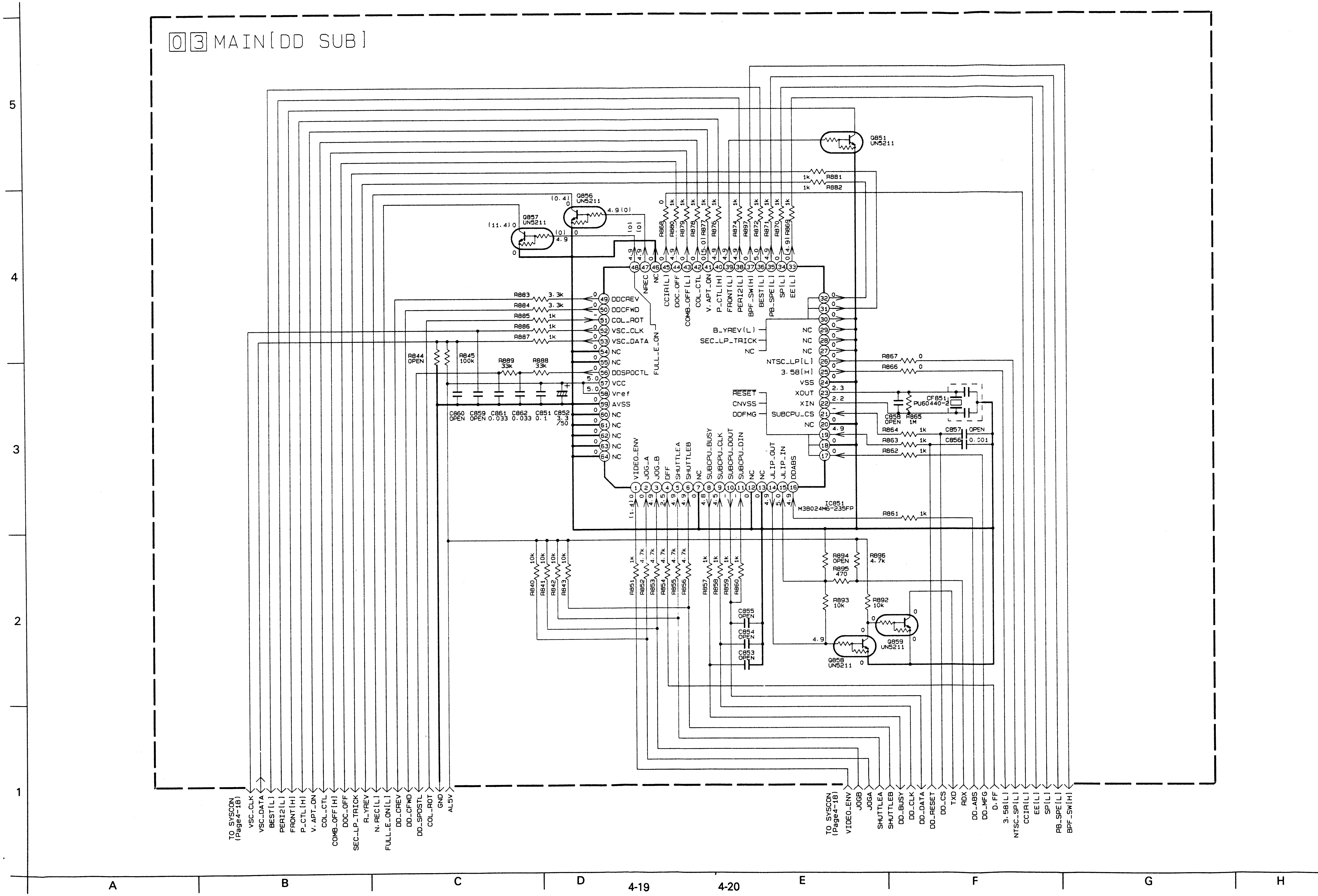
03 MAIN[SYSCON]
TO SW. REG (Page4-22)
DC(-)
DC(+)
-28V
GND(H)
M12V
SW5V
P_CTL(H)
V_UP(H)
GND
ALS. 8V
M12V/17V
SW12V
TO CAP MDA
CN701
CAP FG
SW5V
CAP REV(L)
CAP CTL(V)
M12V/17V
GND(C)
NC
GND(M)
TO SERVO (Page4-25)
CAP_FG
V.P_CTL
CTL_CLOCK
CTL_C/D
CFG_C/D
S.DATA
D.FF
6.5H_DET
REC_ST(H)
DUTY_I/O
DRUM_CTL_V
CAP_V_CTL
TO LOADING MOTOR
CN703
LOM2
LOM1
TO ROTARY ENCODER
CN702
GND(C)
LSC
LSA
NC
LSB
TO TUNER/IF (Page4-23)
I2C_CLK
(OPEN) SYNC_DET
IF_AGC
I2C_DATA
S_CURVE
PLL_DATA
PLL_LOCK
PLL_CE
P. MUTE(L)
PLL_CLK
TU_CTL(L)
SECAM_VL(H)
BPF_SW(H)
A. MUTE(H)
TO VIDEO/N. AUDIO. FMA (Page4-11. 12. 15)
REC_ST(H)
NO(L)
IND(R)
IND(L)
A. MUTE(H)
VIDEO_ENV
H. REC_ST(L)
(OPEN) A. WIDE(H)
B/W(H)
REC(H)
SECAM_DET
MESECAM_DET
INSERT(H)
VIDEO_DATA
VIDEO_CLK
V. P_CTL
C. SYNC
EE(L)
SP(L)
PB_SPE(L)
BEST(L)
V. APT_ON
COL_CTL
COMB_OFF(H)
DOC_OFF
SEC_LP_TRICK
R_YREV
N. REC(L)
FULL_E_ON(L)
COL_ROT
3.58(L)
NTSC_SP(L)
CCIR(L)
EXP2
EXP1
IC701
IC702 24LC00B/P
IC703 S-80728AN
IC704 RH5VL28AA
CF701 PEV80584
CP701 ICP-N25
X701
Q701 2SD1819A(QRS)
Q702 UN521K
Q703 UN5211
Q704 START SENSOR
Q705 END SENSOR
Q706 UN5211
Q711 2SD1819A(QRS)
D701 RD9.1ES-T1B2
D702 11ES2
D703 1N4148M
D704 11ES2
D705 1N4148M
D706 1N4148M
D708 OPEN
D709 OPEN
D710 SIR-301S83FM
PS701 SG-246
PS702 SG-246
REEL SENSOR SUPPLY
REEL SENSOR TAKE UP
LP40038-001A
TP701 TEST
TP702 STB. CLK
5
4
3
2
1
A
B
C
D

NOTE: COMPARISON CHART OF MODELS & MARKS(#)

REF. No. MODELS	IC701
HR-DD949E	HD6433929TA91F
HR-DD949EH	HD6433929TA77F

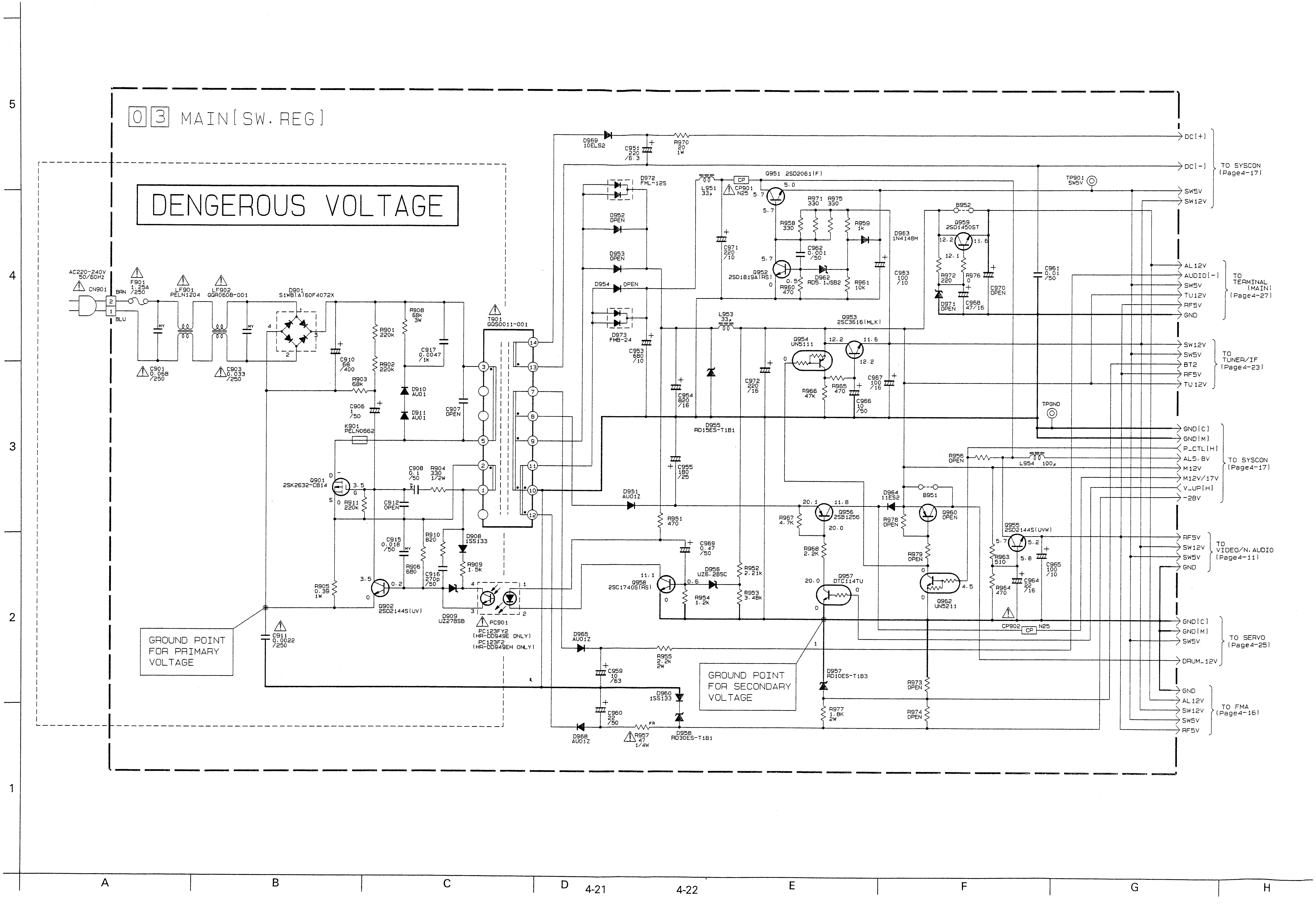

TO DISPLAY
CN1201(Page4-44)
CN802
1 CASS SW
2 REC SAFEY
3 AL 5V
4 S CLK
5 S DATA
6 STB
7 B.UP GND
8 GND(C)
9 RC IN
10 DC(-)
11 DC(+)
12 -28V
0
5.0
5.0
4.6
0
0
4.8
-20.3
-18.8
-28.8
R800 470
R801 100
R791 OPEN
R792 OPEN
C750 OPEN
C737 OPEN
C733 OPEN
C732 OPEN
TO FMA
(Page4-15)
VP_SCL
VP_SDA
I2C_CLK
I2C_DATA
R805 10k
R806 10k
R802 10k
R803 10k
R804 10k
C734 OPEN
C735 OPEN
CN705
1 N.C
2 JSA
3 JSB
4 GND
5 SHUTTLE(L)
6 J2
7 C2
8 J1
OPEN
D713 OPEN
D712 OPEN
TO TERMINAL(MAIN)
(Page4-27)
R810 470
R809 470
D715 1N4148M
D714 1N4148M
CH+_DATA
CH+_CLK
OS_DATA
OS_CLK
I2C_DATA
I2C_CLK
SCR(H)
RAE/R.PAUSE
OS_CE
GND
AV_CTL4
P.MUTE(L)
FRONT(H)
PERI2(L)
EE(L)
RDX
TXD
SYNC_DET
A.WIDE(H)
R768 OPEN
C718 OPEN
C719
0.022F/6.6
R765 10K
R790 10K
D711 1N4148M
Q703 .5211
Q702 UN521K
4.8
0
Q706 UN5211
CP851 ICP-N20
R890 15k
R891 10k
12.2
11.5
4.5
0.2
IC853 BA10358F
IC852 TA72915
VCC
GND
VS
Vref
C864 OPEN
C863 3.3/50
C865 0.1
12.2
11.6
TO DD SENSER.
DD MOTOR
CN851
1 SW5V
2 GND
3 DDABS
4 DDMFG
5 DDMFWD
6 DDMREV
5.0
4.8
TO JOG CN1205
(Page4-43)
CN854
1 SHUTTLE_A
2 GND
3 SHUTTLE_B
4 NC
5 NC
6 JOG_A
7 GND
8 JOG_B
4.9
C748 OPEN
C749 OPEN
REEL SENSOR
TAKE UP
R812 27k
R819 0
R785 75 1/4W
LED
R787 180
R820 0
PS701 SG-246
C724 OPEN
C725 OPEN
D710 SIR-381583FM
R831 OPEN
R832 OPEN
R833 10k
C721
R752 OPEN
C729 OPEN
R796 OPEN
IC705 OPEN
VSS
DATA
CLOCK
PCTL(H)
FRONT
BPF_SW(H)
BEST(L)
EE(L)
VDD
DOC OFF(L)
COMB OFF(H)
COL CTL
PB SPE(L)
SP(L)
PERI2(L)
V.APT.ON
C740 OPEN
R828 10k
R834 0
R835 0
C752 OPEN
C753 OPEN
Q707 OPEN
TO DD SUB
(Page4-20)
JOGB
JOGA
SHUTTLEA
SHUTTLEB
DD_BUSY
DD_CLK
DD_DATA
DD_RESET
DD_CS
TXD
RDX
DD_ABS
DD_MFG
D.FF
3.58(L)
NTSC_SP(L)
CCIR(L)
EE(L)
SP(L)
PB_SPE(L)
BPF_SW(H)
VIDEO_ENV
TO VIDEO/N.AUDIO
(Page4-12)
EXP2
EXP1
OPEN
VSC_CLK
VSC_DATA
TO DD SUB
(Page4-19)
VSC_DATA
VSC_CLK
PERI2(L)
FRONT(H)
P_CTL(H)
BEST(L)
V.APT_ON
COL_CTL
COMB_OFF(H)
DOC_OFF
SEC_LP_TRICK
R_YREV
N.REC(L)
FULL_E_ON(L)
COL_ROT
DD_CREV
DD_CFWD
AL5V
DD_SPDSTL
GND

4.9 DD SUB SCHEMATIC DIAGRAM

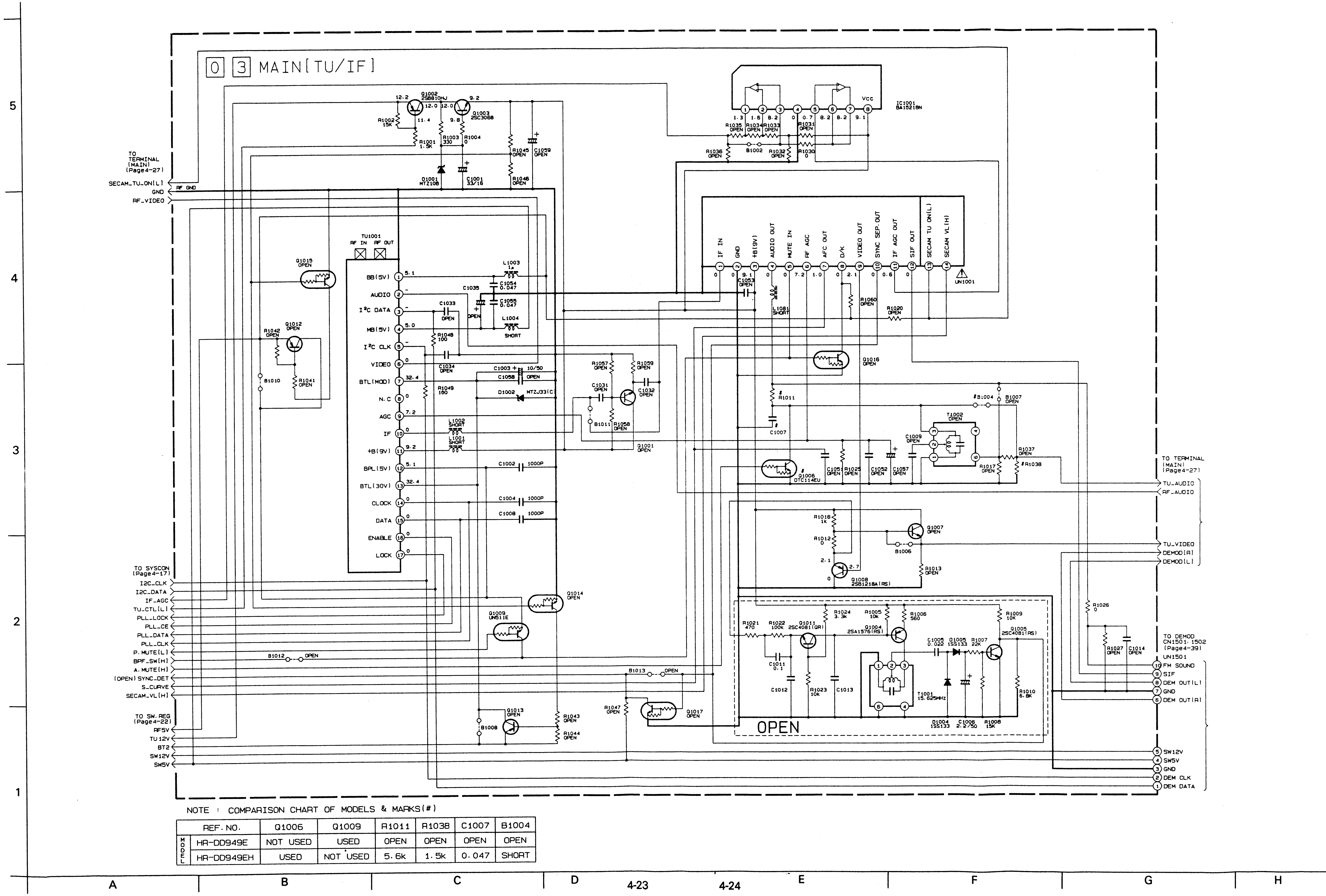


03 MAIN[DD SUB]
Q851 UN5211
Q856 UN5211
Q857 UN5211
Q858 UN5211
Q859 UN5211
IC851 M38024M6-235FP
R881 1k
R882 1k
R868 0
R880 1k
R879 1k
R878 1k
R877 1k
R876 1k
R874 1k
R897 1k
R872 1k
R871 1k
R870 1k
R869 1k
R883 3.3k
R884 3.3k
R885 1k
R886 1k
R887 1k
R844 OPEN
R845 100k
R889 33k
R888 33k
C860 OPEN
C859 OPEN
C861 0.033
C862 0.033
C851 0.1
C852 3.3/50
R867 0
R866 0
CF851 PU60440-2
C858 OPEN
R865 1M
R864 1k
R863 1k
R862 1k
C857 OPEN
C856 0.001
R861 1k
R840 10k
R841 10k
R842 10k
R843 10k
R851 1k
R852 4.7k
R853 4.7k
R854 4.7k
R855 4.7k
R856 4.7k
R857 1k
R858 1k
R859 1k
R860 1k
C855 OPEN
C854 OPEN
C853 OPEN
R894 OPEN
R895 470
R896 4.7k
R893 10k
R892 10k
49 DDCREV
50 DDCFWD
51 COL_ROT
52 VSC_CLK
53 VSC_DATA
54 NC
55 NC
56 DDSPOCTL
57 VCC
58 Vref
59 AVSS
60 NC
61 NC
62 NC
63 NC
64 NC
48 FULL_E_ON
47 NREC
46 NC
45 CCIR[L]
44 DOC_OFF
43 COMB_OFF[L]
42 COL_CTL
41 V.APT_ON
40 P_CTL[H]
39 FRONT[L]
38 PERI2[L]
37 BPF_SW[H]
36 BEST[L]
35 PB_SPE[L]
34 SP[L]
33 EE[L]
32
31
30
B_YREV[L]
SEC_LP_TRICK
29 NC
28 NC
27 NC
26 NTSC_LP[L]
25 3.58[H]
24 VSS
23 XOUT
22 XIN
21 SUBCPU_CS
20 NC
19
18
17
RESET
CNVSS
DDFMG
1 VIDEO_ENV
2 JOG_A
3 JOG_B
4 DFF
5 SHUTTLEA
6 SHUTTLEB
7 NC
8 SUBCPU_BUSY
9 SUBCPU_CLK
10 SUBCPU_DOUT
11 SUBCPU_DIN
12 NC
13 NC
14 JLIP_OUT
15 JLIP_IN
16 DDABS
(0.4)
4.9(0)
(11.4)0
(0)
4.9
5.0
2.3
2.2
(1.4)
TO SYSCON (Page4-18)
VSC_CLK
VSC_DATA
BEST[L]
PERI2[L]
FRONT[H]
P_CTL[H]
V.APT_ON
COL_CTL
COMB_OFF[H]
DOC_OFF
SEC_LP_TRICK
R_YREV
N.REC[L]
FULL_E_ON[L]
DD_CREV
DD_CFWD
DD_SPDSTL
COL_ROT
GND
AL5V
TO SYSCON (Page4-18)
VIDEO_ENV
JOGB
JOGA
SHUTTLEA
SHUTTLEB
DD_BUSY
DD_CLK
DD_DATA
DD_RESET
DD_CS
TXD
RDX
DD_ABS
DD_MFG
D.FF
3.58[L]
NTSC_SP[L]
CCIR[L]
EE[L]
SP[L]
PB_SPE[L]
BPF_SW[H]
1
2
3
4
5
A
B
C
D
E
F
G
H

4.10 REGULATOR SCHEMATIC DIAGRAM


03 MAIN[SW.REG]
DENGEROUS VOLTAGE
AC220-240V 50/60Hz
CN901
BRN
BLU
F901 1.25A /250
LF901 PELN1204
LF902 QQR0608-001
C901 0.068 /250
C903 0.033 /250
D901 S1WB(A)60F4072X
C910 68 /400
R901 220k
R902 220k
R903 68k
R908 68k 3W
C917 0.0047 /1k
D910 AU01
D911 AU01
C906 1 /50
C907 OPEN
K901 PELN0662
T901 QQS0011-001
Q901 2SK2632-CB14
R911 220k
C912 OPEN
C908 0.1 /50
R904 330 1/2W
C915 0.018 /50
R910 820
R906 680
C916 270p /50
D908 1SS133
R909 1.5k
R905 0.39 1W
Q902 2SD2144S(UV)
D909 UZ27BSB
PC901 PC123FY2 (HR-DD949E ONLY) PC123F2 (HR-DD949EH ONLY)
C911 0.0022 /250
GROUND POINT FOR PRIMARY VOLTAGE
D969 10ELS2
C951 220 /6.3
R970 20 1W
D972 FML-12S
D952 OPEN
D953 OPEN
D954 OPEN
D973 FMB-24
C953 680 /10
L951 33µ
CP901 N25
Q951 2SD2061(F)
R971 330
R975 330
R958 330
R959 1k
C971 220 /10
Q952 2SD1819A(RS)
C962 0.001 /50
D962 RD5.1JSB2
R960 470
R961 10k
D963 1N4148M
C963 100 /10
L953 33µ
C954 820 /16
C972 220 /16
D955 RD15ES-T1B1
C955 180 /25
Q953 2SC3616(MLK)
Q954 UN5111
R966 47k
R965 470
C967 100 /16
C966 10 /50
B952
Q959 2SD1450ST
R972 220
R976 0
D971 OPEN
C958 47/16
C970 OPEN
C961 0.01 /50
TP901 SW5V
TPGND
R956 OPEN
L954 100µ
D951 AU01Z
R951 470
C969 0.47 /50
Q958 2SC1740S(RS)
D956 UZ6.2BSC
R952 2.21k
R953 3.48k
R954 1.2k
R967 4.7k
Q956 2SB1256
R968 2.2k
Q957 DTC114TU
D964 11ES2
B951
R978 OPEN
Q960 OPEN
R979 OPEN
Q962 UN5211
Q955 2SD2144S(UVW)
R963 510
R964 470
C964 22 /16
C965 100 /10
CP902 N25
D965 AU01Z
R955 2.2k 2W
C959 10 /63
C960 22 /50
D960 1SS133
D968 AU01Z
R957 47 1/4W
D958 RD30ES-T1B1
GROUND POINT FOR SECONDARY VOLTAGE
D957 RD10ES-T1B3
R977 1.8K 2W
R973 OPEN
R974 OPEN
DC(+)
DC(-)
SW5V
SW12V
TO SYSCON (Page4-17)
AL12V
AUDIO(-)
SW5V
TU12V
RF5V
GND
TO TERMINAL (MAIN) (Page4-27)
SW12V
SW5V
BT2
RF5V
TU12V
TO TUNER/IF (Page4-23)
GND(C)
GND(M)
P_CTL(H)
AL5.8V
M12V
M12V/17V
V_UP(H)
-28V
TO SYSCON (Page4-17)
RF5V
SW12V
SW5V
GND
TO VIDEO/N.AUDIO (Page4-11)
GND(C)
GND(M)
SW5V
TO SERVO (Page4-25)
DRUM_12V
GND
AL12V
SW12V
SW5V
RF5V
TO FMA (Page4-16)
A
B
C
D
E
F
G
H
1
2
3
4
5

4.11 TUNER SCHEMATIC DIAGRAM

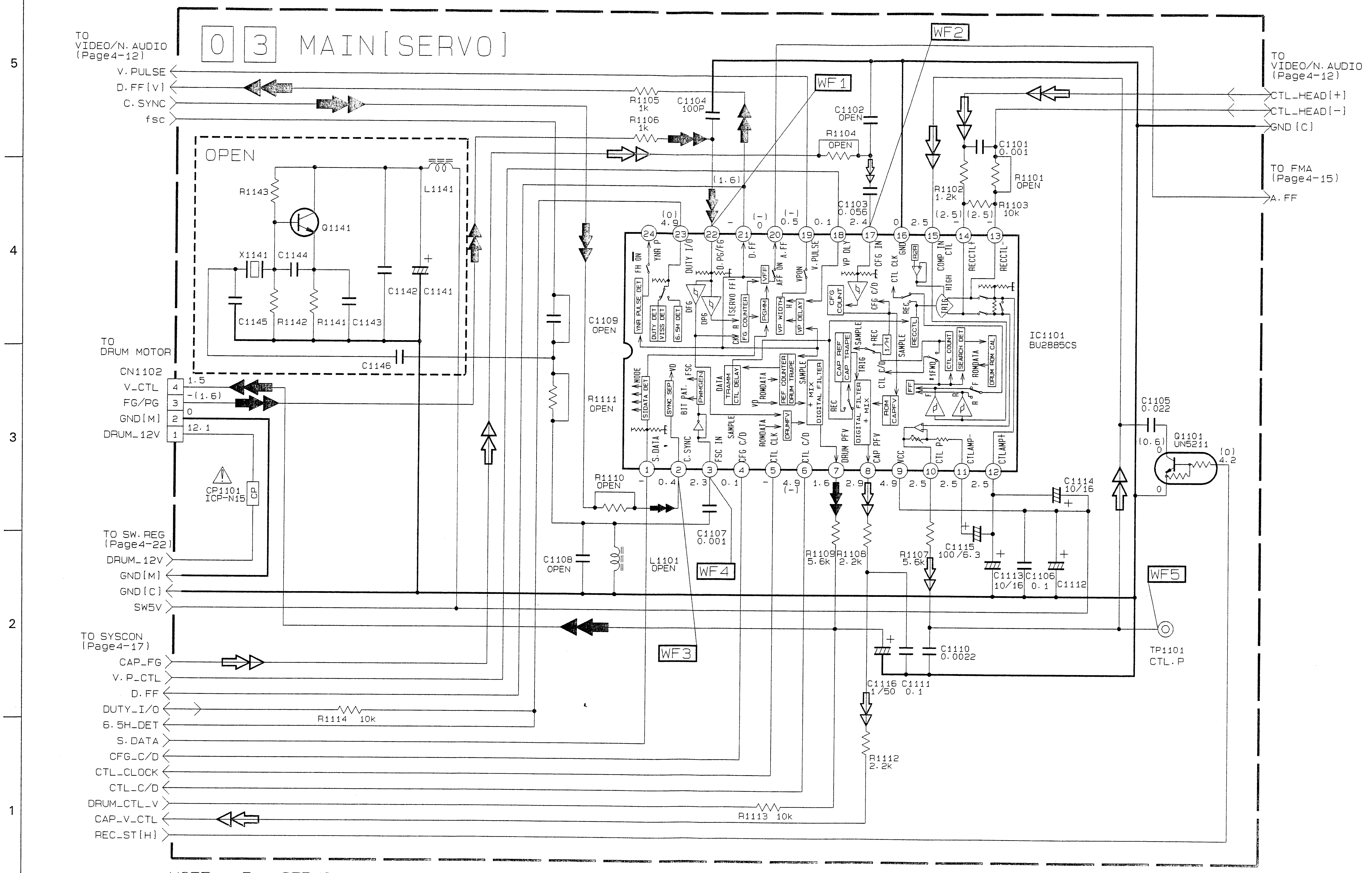


0 3 MAIN[TU/IF]
TO TERMINAL (MAIN) (Page4-27)
SECAM_TU_ON[L]
GND
RF_VIDEO
RF GND
Q1002 2SB810HJ
Q1003 2SC3068
R1002 15K
R1001 1.5K
R1003 330
R1004 0
D1001 MTZ10B
C1001 33/16
R1045 OPEN
C1059 OPEN
R1046 OPEN
12.2
12.0
9.2
11.4
9.8
TU1001
RF IN
RF OUT
BB(5V)
AUDIO
I²C DATA
MB(5V)
I²C CLK
VIDEO
BTL(MOD)
N.C
AGC
IF
+B(9V)
BPL(5V)
BTL(30V)
CLOCK
DATA
ENABLE
LOCK
L1003 1μ
C1054 0.047
C1055 0.047
C1035
C1033 OPEN
L1004 SHORT
R1048 100
C1034 OPEN
C1003 10/50
C1058 OPEN
D1002 MTZJ33(C)
R1049 100
L1002 SHORT
L1001 SHORT
C1002 1000P
C1004 1000P
C1008 1000P
Q1015 OPEN
Q1012 OPEN
R1042 OPEN
R1041 OPEN
B1010
R1057 OPEN
R1059 OPEN
C1031 OPEN
C1032 OPEN
B1011
R1058 OPEN
Q1001 OPEN
IC1001 BA1521BN
Vcc
R1035 OPEN
R1034 OPEN
R1033 OPEN
R1031 OPEN
R1036 OPEN
B1002
R1032 OPEN
R1030 0
IF IN
GND
+B(9V)
AUDIO OUT
MUTE IN
RF AGC
AFC OUT
D/K
VIDEO OUT
SYNC SEP. OUT
IF AGC OUT
SIF OUT
SECAM TU ON(L)
SECAM VL(H)
UN1001
C1053 OPEN
L1081 SHORT
R1060 OPEN
R1020 OPEN
Q1016 OPEN
R1011
C1007
B1004
B1007
T1002 OPEN
C1009 OPEN
R1037 OPEN
R1017 OPEN
R1038
Q1006 DTC114EU
C1051 OPEN
R1025 OPEN
C1052 OPEN
C1057 OPEN
R1016 1K
R1012 0
Q1007 OPEN
B1006
R1013 OPEN
Q1008 2SB1218A(RS)
TO TERMINAL (MAIN) (Page4-27)
TU_AUDIO
RF_AUDIO
TU_VIDEO
DEMOD[R]
DEMOD[L]
TO SYSCON (Page4-17)
I2C_CLK
I2C_DATA
IF_AGC
TU_CTL[L]
PLL_LOCK
PLL_CE
PLL_DATA
PLL_CLK
P.MUTE[L]
BPF_SW[H]
A.MUTE[H]
(OPEN) SYNC_DET
S_CURVE
SECAM_VL[H]
TO SW.REG (Page4-22)
RF5V
TU12V
BT2
SW12V
SW5V
Q1014 OPEN
Q1009 UN511E
B1012 OPEN
B1013 OPEN
Q1013 OPEN
B1008
R1043 OPEN
R1044 OPEN
R1047 OPEN
Q1017 OPEN
R1021 470
R1022 100K
Q1011 2SC4081(QR)
R1024 3.3K
R1005 10K
R1006 560
Q1004 2SA1576(RS)
R1009 10K
Q1005 2SC4081(RS)
C1011 0.1
C1012
R1023 10K
C1013
C1005 0.022
D1005 1SS133
R1007 22K
T1001 15.625MHz
R1010 6.8K
D1004 1SS133
C1006 2.2/50
R1008 15K
OPEN
R1026 0
R1027 OPEN
C1014 OPEN
TO DEMOD CN1501: 1502 (Page4-39)
UN1501
FM SOUND
SIF
DEM OUT(L)
GND
DEM OUT(R)
SW12V
SW5V
GND
DEM CLK
DEM DATA
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTE : COMPARISON CHART OF MODELS & MARKS(#)

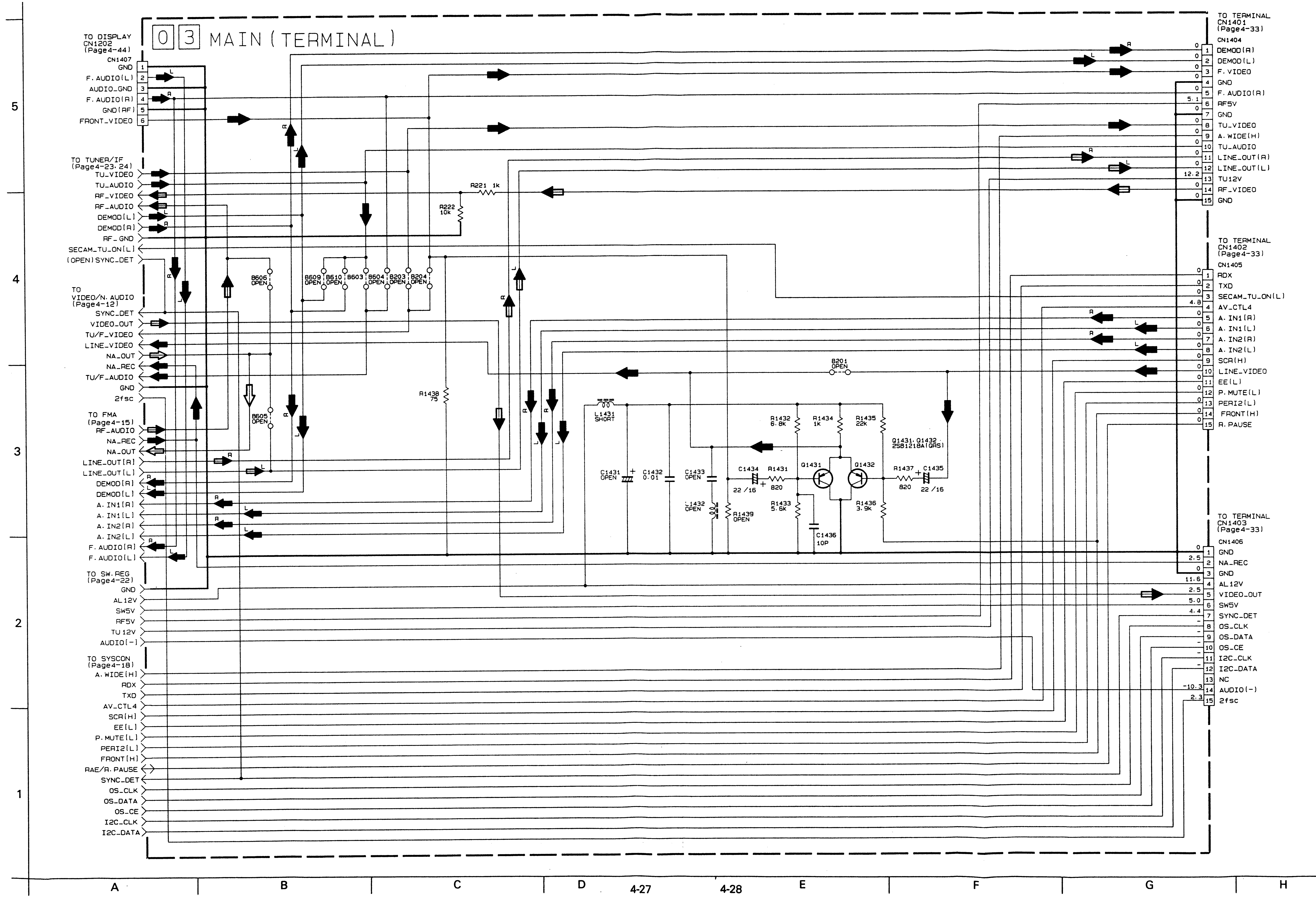
	REF. NO.	Q1006	Q1009	R1011	R1038	C1007	B1004
MODEL	HR-DD949E	NOT USED	USED	OPEN	OPEN	OPEN	OPEN
	HR-DD949EH	USED	NOT USED	5.6k	1.5k	0.047	SHORT

4.12 SERVO SCHEMATIC DIAGRAM


03 MAIN[SERVO]
OPEN
TO VIDEO/N.AUDIO (Page4-12)
V.PULSE
D.FF[V]
C.SYNC
fsc
TO DRUM MOTOR
CN1102
V_CTL
FG/PG
GND[M]
DRUM_12V
CP1101 ICP-N15
TO SW.REG (Page4-22)
DRUM_12V
GND[M]
GND[C]
SW5V
TO SYSCON (Page4-17)
CAP_FG
V.P_CTL
D.FF
DUTY_I/O
6.5H_DET
S.DATA
CFG_C/D
CTL_CLOCK
CTL_C/D
DRUM_CTL_V
CAP_V_CTL
REC_ST[H]
R1114 10k
R1113 10k
R1143
Q1141
L1141
X1141
C1144
C1145
R1142
R1141
C1143
C1142
C1141
C1146
R1105 1k
C1104 100P
R1106 1k
C1102 OPEN
R1104 OPEN
C1103 0.056
C1109 OPEN
R1111 OPEN
R1110 OPEN
C1107 0.001
C1108 OPEN
L1101 OPEN
WF1
WF2
WF3
WF4
WF5
IC1101 BU2885CS
R1102 1.2k
R1101 OPEN
C1101 0.001
R1103 10k
C1105 0.022
Q1101 UN5211
C1114 10/16
C1115 100/6.3
C1113 10/16
C1106 0.1
C1112
R1109 5.6k
R1108 2.2k
R1107 5.6k
C1110 0.0022
C1116 1/50
C1111 0.1
R1112 2.2k
TP1101 CTL.P
TO VIDEO/N.AUDIO (Page4-12)
CTL_HEAD[+]
CTL_HEAD[-]
GND[C]
TO FMA (Page4-15)
A.FF
S.DATA
C.SYNC
FSC IN
CFG C/D
CTL CLK
CTL C/D
DRUM PFV
CAP PFV
VCC
CTL P
CTLAMP-
CTLAMP+
YNR P
DUTY I/O
D.PG/FG
D.FF
A.FF
V.PULSE
VP DLY
CFG IN
GND
COMP IN
RECCTL+
RECCTL-
1 2 3 4 5 6 7 8 9 10 11 12
24 23 22 21 20 19 18 17 16 15 14 13
1.5
-(1.6)
0
12.1
(0) 4.9
(1.6)
0
(-) 0.5
0.1
2.4
0
2.5
(2.5)
(2.5)
0.4
2.3
0.1
4.9 (-)
1.6
2.9
4.9
2.5
2.5
2.5
(0.6) 0
(0) 4.2
0
1
2
3
4
5
A
B
C
D
E
F
G
H

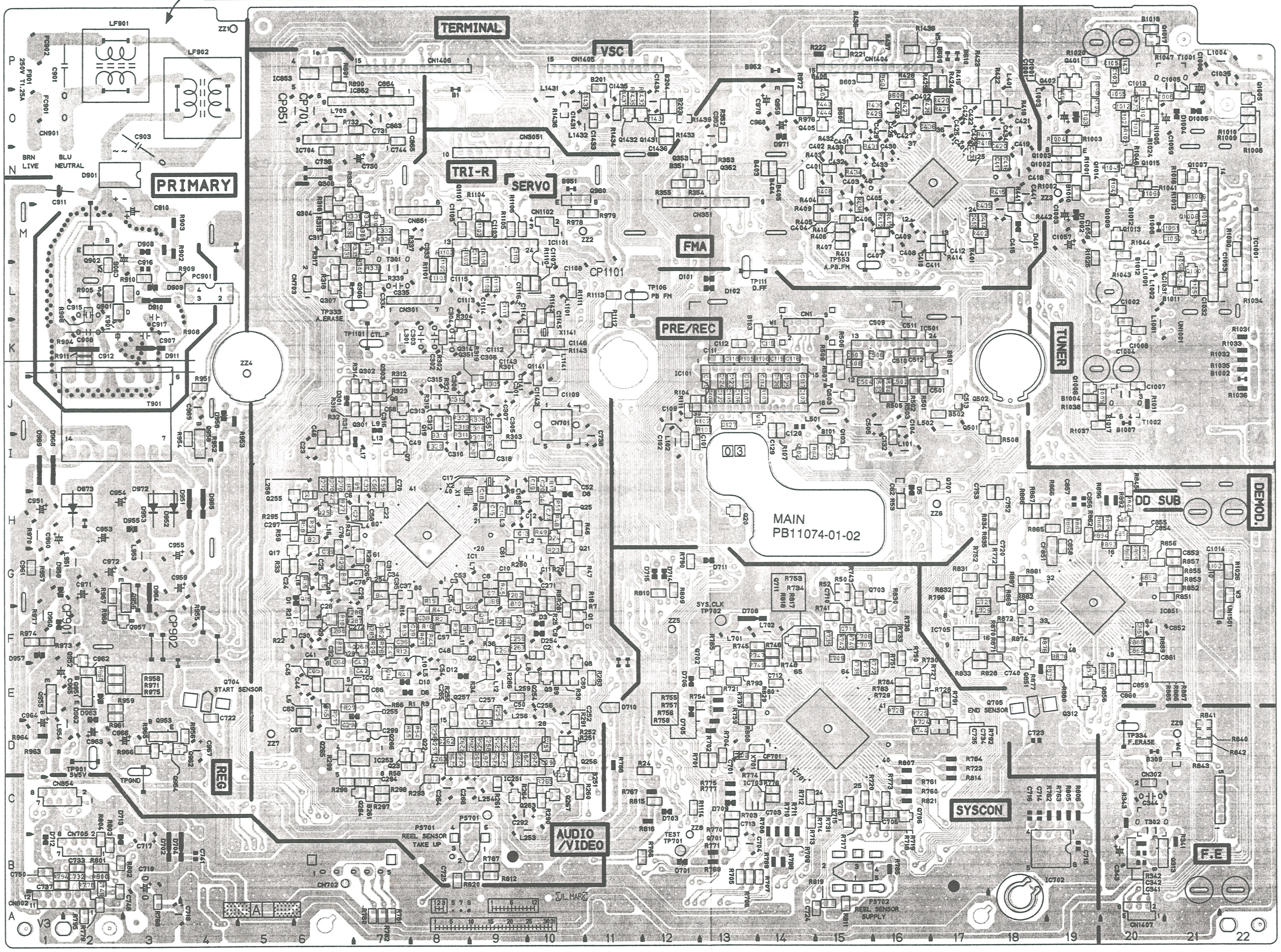
NOTE : For SERVO waveforms, please refer to page4-32.

4.13 TERMINAL MAIN SCHEMATIC DIAGRAM

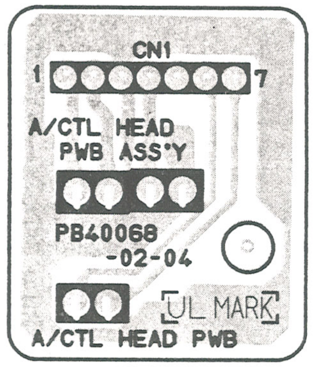

03 MAIN (TERMINAL)
TO DISPLAY
CN1202
(Page4-44)
CN1407
1 GND
2 F. AUDIO(L)
3 AUDIO_GND
4 F. AUDIO(R)
5 GND(RF)
6 FRONT_VIDEO
TO TUNER/IF
(Page4-23, 24)
TU_VIDEO
TU_AUDIO
RF_VIDEO
RF_AUDIO
DEMOD(L)
DEMOD(R)
RF_GND
SECAM_TU_ON(L)
(OPEN)SYNC_DET
TO
VIDEO/N. AUDIO
(Page4-12)
SYNC_DET
VIDEO_OUT
TU/F_VIDEO
LINE_VIDEO
NA_OUT
NA_REC
TU/F_AUDIO
GND
2fsc
TO FMA
(Page4-15)
RF_AUDIO
NA_REC
NA_OUT
LINE_OUT(R)
LINE_OUT(L)
DEMOD(R)
DEMOD(L)
A. IN1(R)
A. IN1(L)
A. IN2(R)
A. IN2(L)
F. AUDIO(R)
F. AUDIO(L)
TO SW. REG
(Page4-22)
GND
AL12V
SW5V
RF5V
TU12V
AUDIO(-)
TO SYSCON
(Page4-18)
A. WIDE(H)
RDX
TXD
AV_CTL4
SCR(H)
EE(L)
P. MUTE(L)
PERI2(L)
FRONT(H)
RAE/R. PAUSE
SYNC_DET
OS_CLK
OS_DATA
OS_CE
I2C_CLK
I2C_DATA
R221 1k
R222 10k
B606 OPEN
B609 OPEN
B610 OPEN
B603
B604 OPEN
B203 OPEN
B204 OPEN
B605 OPEN
R1438 75
B201 OPEN
L1431 SHORT
C1431 OPEN
C1432 0.01
C1433 OPEN
L1432 OPEN
R1439 OPEN
C1434 22/16
R1431 820
R1432 6.8k
R1433 5.6k
R1434 1k
R1435 22k
R1436 3.9k
R1437 820
C1435 22/16
C1436 10P
Q1431
Q1432
Q1431, Q1432 : 2SB1218A(QRS)
R
L
TO TERMINAL
CN1401
(Page4-33)
CN1404
1 DEMOD(R) 0
2 DEMOD(L) 0
3 F. VIDEO 0
4 GND 0
5 F. AUDIO(R) 0
6 RF5V 5.1
7 GND 0
8 TU_VIDEO 0
9 A. WIDE(H) 0
10 TU_AUDIO 0
11 LINE_OUT(R) 0
12 LINE_OUT(L) 0
13 TU12V 12.2
14 RF_VIDEO 0
15 GND 0
TO TERMINAL
CN1402
(Page4-33)
CN1405
1 RDX 0
2 TXD 0
3 SECAM_TU_ON(L) 0
4 AV_CTL4 4.8
5 A. IN1(R) 0
6 A. IN1(L) 0
7 A. IN2(R) 0
8 A. IN2(L) 0
9 SCR(H) 0
10 LINE_VIDEO 0
11 EE(L) 0
12 P. MUTE(L) 0
13 PERI2(L) 0
14 FRONT(H) 0
15 R. PAUSE 0
TO TERMINAL
CN1403
(Page4-33)
CN1406
1 GND 0
2 NA_REC 2.5
3 GND 0
4 AL12V 11.6
5 VIDEO_OUT 2.5
6 SW5V 5.0
7 SYNC_DET 4.4
8 OS_CLK -
9 OS_DATA -
10 OS_CE -
11 I2C_CLK -
12 I2C_DATA -
13 NC
14 AUDIO(-) -10.3
15 2fsc 2.3
5
4
3
2
1
A
B
C
D
E
F
G
H

4.14 MAIN AND A/C HEAD CIRCUIT BOARDS

DANGEROUS VOLTAGE


PRIMARY
TERMINAL
VSC
TRI-R
SERVO
FMA
PRE/REC
TUNER
DD SUB
DEMOD.
REG
AUDIO /VIDEO
SYSCON
F.E
MAIN
PB11074-01-02

— A/C HEAD —


CN1
1
7
A/CTL HEAD
PWB ASS'Y
PB40068
-02-04
UL MARK
A/CTL HEAD PWB

COMPONENT PARTS LOCATION GUIDE <MAIN>

CAPACITOR

REF.NO.	LOCATION		
C1	B	C	10F
C2	B	C	10F
C3	B	C	8G
C4	B	C	8F
C5	B	C	8G
C6	A	D	7H
C7	B	C	9G
C8	B	C	9G
C9	A	D	10F
C10	B	C	9G
C11	A	D	10G
C12	A	D	10H
C13	B	C	10H
C14	B	C	9H
C15	B	C	9H
C16	A	D	10H
C17	A	D	9I
C18	B	C	9H
C19	B	C	10I
C20	B	C	10I
C21	B	C	7H
C22	B	C	7H
C23	A	D	6I
C24	B	C	5G
C25	A	D	6G
C26	A	D	6G
C27	B	C	10H
C28	B	C	6F
C29	A	D	7G
C30	A	D	6F
C31	B	C	7G
C32	A	D	6F
C33	B	C	7I
C34	B	C	7G
C35	B	C	7G
C36	B	C	7F
C37	B	C	7G
C38	B	C	8F
C39	B	C	8F
C40	B	C	6H
C41	B	C	6E
C42	B	C	7E
C43	B	C	7E
C44	A	D	6E
C45	B	C	6E
C46	B	C	6I
C47	B	C	7F
C48	B	C	8F
C49	B	C	7J
C50	B	C	9E
C52	B	C	10I
C53	B	C	9G
C54	A	D	8E
C55	A	D	6G
C56	B	C	7I
C57	B	C	8F
C58	B	C	7H
C59	B	C	7I
C60	B	C	9F
C61	B	C	9H
C62	B	C	16I
C63	B	C	6E
C64	B	C	6E
C65	B	C	6E
C66	B	C	7E
C67	B	C	6D
C68	B	C	7J
C70	B	C	7I
C75	B	C	6G
C76	B	C	6H
C78	B	C	7G
C79	B	C	6G
C80	B	C	10E
C101	B	C	12I
C102	B	C	12I
C103	B	C	14J
C104	A	D	16J
C105	B	C	13J
C106	B	C	13J
C107	B	C	13J
C108	B	C	13J
C109	A	D	12J
C110	B	C	13J
C111	B	C	13K
C112	B	C	13K
C113	B	C	13J
C114	B	C	14J
C115	B	C	14K
C116	B	C	14K
C117	B	C	14J
C118	B	C	13K
C119	B	C	14K
C120	A	D	14J
C121	B	C	15I
C122	B	C	13J
C123	B	C	13J
C124	B	C	13J
C125	B	C	14J
C126	B	C	14J
C127	B	C	13J
C129	B	C	14J
C132	B	C	16I
C251	B	C	10D
C252	A	D	10D
C253	B	C	9D
C254	B	C	9D
C255	B	C	9D
C256	A	D	10E
C257	B	C	9E
C258	B	C	9D
C259	B	C	9F
C260	B	C	9D
C261	B	C	9F
C262	B	C	8D
C263	B	C	8D
C264	A	D	8C
C265	B	C	8E
C266	A	D	9C
C267	B	C	9D
C268	B	C	9D
C269	B	C	9D
C270	B	C	6I
C271	B	C	10G
C272	B	C	7F
C290	B	C	10D
C291	B	C	9D
C292	A	D	10C
C294	B	C	7C
C296	B	C	8D
C297	B	C	6H
C298	B	C	6D
C299	B	C	7D
C301	A	D	9J
C302	A	D	8K
C303	A	D	8K
C304	A	D	8K
C305	B	C	9J
C306	B	C	9J
C307	A	D	9J
C308	A	D	8J
C309	B	C	9J
C310	A	D	8I
C311	B	C	8J
C312	B	C	8J
C313	A	D	8J
C314	B	C	8J
C315	A	D	8J
C316	B	C	7J
C317	A	D	6M
C318	B	C	9I
C319	B	C	8J
C331	B	C	6M
C332	B	C	7M
C333	A	D	8M
C334	B	C	7L
C335	A	D	7L
C341	A	D	20B
C342	A	D	20B
C343	A	D	20B
C344	A	D	21C
C351	A	D	9J
C352	A	D	13O
C401	A	D	15N
C402	A	D	15N
C403	A	D	15N
C404	A	D	15M
C405	A	D	16M
C406	A	D	15M
C407	B	C	16M
C408	A	D	16M
C409	A	D	16M
C410	A	D	16M
C411	B	C	17M
C412	B	C	17M
C413	B	C	17M
C414	B	C	17M
C415	A	D	18M
C416	B	C	18N
C417	B	C	18N
C418	A	D	18N
C419	A	D	18N
C420	B	C	18N
C421	A	D	18O
C422	A	D	17O
C423	A	D	17O
C424	A	D	17O
C425	A	D	17O
C426	A	D	16O
C427	A	D	16O
C428	A	D	16O
C429	A	D	16O
C430	A	D	16N
C431	A	D	15O
C432	A	D	15N
C433	A	D	16N
C434	A	D	18O
C435	B	C	17N
C436	B	C	17O
C441	A	D	18N
C501	B	C	17J
C502	B	C	16J
C503	B	C	16J
C504	B	C	15J
C505	A	D	16J
C506	B	C	16K
C507	B	C	15K
C508	B	C	15K
C509	B	C	16K
C510	B	C	16K
C511	B	C	16K
C512	B	C	16K
C513	B	C	17J
C701	A	D	13D
C702	B	C	13D
C703	B	C	14C
C704	A	D	13B
C705	B	C	16C
C706	B	C	15F
C707	B	C	15F
C709	B	C	15F
C710	B	C	15F
C711	B	C	15F
C712	B	C	14E
C713	B	C	13C
C714	A	D	18C
C715	A	D	19B
C716	A	D	18C
C717	A	D	3B
C718	A	D	3A
C719	A	D	3B
C720	B	C	18G
C721	B	C	17G
C722	B	C	4E
C723	A	D	19D
C724	B	C	15A
C725	B	C	8B
C729	B	C	17F
C730	A	D	7N
C731	B	C	7O
C732	B	C	2B
C733	B	C	2B
C734	B	C	17D
C735	B	C	17D
C736	B	C	6N
C737	B	C	1B
C738	A	D	11I
C740	B	C	18F
C741	A	D	4B
C744	B	C	7O
C748	B	C	2A
C749	B	C	2B
C750	B	C	1B
C752	B	C	18H
C753	B	C	18H
C851	B	C	20F
C852	A	D	20F
C853	B	C	21G
C854	B	C	20H
C855	B	C	20H
C856	A	D	19H
C857	A	D	19H
C858	B	C	19G
C859	B	C	20E
C860	B	C	20E
C861	B	C	20F
C862	B	C	20F
C863	A	D	7O
C864	B	C	7O
C865	B	C	8O
C901	A	D	2P
C903	A	D	2O
C906	A	D	3M
C907	A	D	3K
C908	A	D	2K
C910	A	D	2M
C911	A	D	2N
C912	B	C	2K
C915	A	D	2L
C916	A	D	3L
C917	A	D	3L
C951	A	D	1H
C953	A	D	2H
C954	A	D	3H
C955	A	D	4G
C959	A	D	4G
C960	A	D	1H
C961	B	C	1G
C962	B	C	2E
C963	A	D	2D
C964	A	D	1D
C965	A	D	1E
C966	A	D	3D
C967	A	D	4D
C968	A	D	14O
C969	A	D	4J
C970	A	D	14O
C971	A	D	2G
C972	A	D	2G
C1001	A	D	19O
C1002	B	C	20L
C1003	A	D	19M
C1004	B	C	20K
C1005	B	C	21O
C1006	A	D	21O
C1007	B	C	20J
C1008	B	C	20K
C1009	B	C	20J
C1011	B	C	20O
C1012	B	C	20O
C1013	B	C	20O
C1014	B	C	21G
C1031	B	C	21L
C1032	B	C	21L
C1033	B	C	20P
C1034	B	C	19O
C1035	A	D	22P
C1051	B	C	21M
C1052	B	C	21M
C1053	B	C	22L
C1054	B	C	20P
C1055	B	C	20O
C1057	A	D	19M
C1058	B	C	19M
C1059	A	D	21O
C1101	B	C	8L
C1102	B	C	9M
C1103	B	C	9M
C1104	B	C	9M
C1105	B	C	8M
C1106	B	C	9M
C1107	B	C	10L
C1108	B	C	10L
C1109	B	C	10J
C1110	B	C	9M
C1111	B	C	9L
C1112	A	D	9K
C1113	A	D	9L
C1114	A	D	9L
C1115	A	D	8L
C1116	A	D	9L
C1141	A	D	10J
C1142	B	C	10J
C1143	B	C	9K
C1144	B	C	10K
C1145	B	C	10K
C1146	B	C	10K
C1431	A	D	10O
C1432	B	C	11O
C1433	B	C	11O
C1434	A	D	12O
C1435	A	D	11O
C1436	B	C	12O
C1437	B	C	20P

CONNECTOR

REF.NO.	LOCATION		
CN1	A	D	14K
CN301	A	D	7L
CN302	A	D	20C
CN351	A	D	12M
CN701	A	D	10J
CN702	A	D	6B
CN703	A	D	6L
CN705	A	D	2B
CN802	A	D	2A
CN851	A	D	7M
CN854	A	D	2C
CN901	A	D	1O
CN1102	A	D	10M
CN1404	A	D	17P
CN1405	A	D	12P
CN1406	A	D	9P
CN1407	A	D	20A
CN3051	A	D	10N

CIRCUIT PROTECTOR

REF.NO.	LOCATION		
CP701	A	D	6O
CP851	A	D	6O
CP901	A	D	2F
CP902	A	D	3F
CP1101	A	D	11L

DIODE

REF.NO.	LOCATION		
D1	A	D	6G
D3	A	D	10F
D5	A	D	16H
D6	A	D	8E
D8	A	D	10H
D10	A	D	8E
D12	A	D	8E
D101	A	D	13L
D102	A	D	13L
D254	A	D	10F
D255	A	D	7E
D301	A	D	6J
D401	A	D	18M
D402	A	D	17O
D701	A	D	12B
D702	A	D	3C
D703	A	D	12C
D704	A	D	4C
D705	A	D	12E
D706	A	D	12E
D708	A	D	13F
D709	A	D	13C
D710	A	D	11E
D711	A	D	13G
D712	A	D	1B
D713	A	D	2B
D714	A	D	12G
D715	A	D	12G
D901	B	C	2N
D908	A	D	3M
D909	A	D	3L
D910	A	D	3L
D911	A	D	3K
D951	A	D	4I
D952	A	D	3I
D953	A	D	3I
D954	A	D	2I
D955	A	D	3H
D956	A	D	4J
D957	A	D	1F
D958	A	D	1G
D960	A	D	1F
D962	A	D	2E
D963	A	D	2E
D964	A	D	3G
D965	A	D	4I
D968	A	D	1I
D969	A	D	1I
D971	A	D	14O
D972	A	D	3H
D973	A	D	2H
D1001	A	D	19O
D1002	A	D	19M
D1004	A	D	21O
D1005	A	D	21O

IC

REF.NO.	LOCATION		
IC1	B	C	8H
IC2	B	C	6E
IC101	A	D	13K
IC251	A	D	10D
IC253	B	C	7D
IC401	B	C	17N
IC501	A	D	17K
IC701	B	C	15D
IC702	A	D	19B
IC703	B	C	13C
IC704	A	D	7O
IC705	B	C	17F
IC851	B	C	19G
IC852	A	D	8O
IC853	B	C	6P
IC1001	A	D	22L
IC1101	A	D	10L

COIL

REF.NO.	LOCATION		
L1	A	D	9F
L2	A	D	10G
L3	A	D	9H
L4	A	D	6H
L5	A	D	8E
L6	A	D	6D
L7	A	D	9G
L8	A	D	10E
L9	A	D	7J
L10	A	D	7E
L11	A	D	8F
L12	A	D	9E
L13	A	D	7I
L15	A	D	6F
L16	A	D	6G
L17	A	D	7J
L101	A	D	16I
L102	A	D	12I
L253	A	D	10C
L254	A	D	9C
L256	A	D	9E
L258	A	D	6H
L259	A	D	9F
L301	A	D	7K
L401	A	D	18O
L501	A	D	15J
L502	A	D	17J
L701	A	D	13F
L702	A	D	14F
L703	A	D	6O
L951	A	D	2G
L953	A	D	3H
L954	A	D	2E
L1001	A	D	21L
L1002	A	D	21L
L1003	A	D	19O
L1004	A	D	22P
L1081	A	D	21L
L1101	A	D	10L
L1141	A	D	10K
L1431	A	D	10O
L1432	A	D	11O

TRANSISTOR

REF.NO.	LOCATION		
Q1	B	C	10F
Q2	B	C	9F
Q3	B	C	10E
Q4	B	C	10H
Q6	B	C	7J
Q7	B	C	7I
Q8	B	C	10E
Q9	B	C	6F
Q14	B	C	7E
Q15	B	C	9F
Q16	B	C	6G
Q17	B	C	5G
Q19	B	C	8J
Q20	B	C	13H
Q21	B	C	10H
Q22	B	C	8D
Q23	B	C	7D
Q24	B	C	10H
Q25	B	C	10H
Q101	B	C	14J
Q102	B	C	14I
Q103	B	C	15I
Q251	B	C	10D
Q252	B	C	6H
Q253	B	C	6H
Q254	B	C	10E
Q255	B	C	5H
Q256	B	C	10D
Q257	B	C	9E
Q258	B	C	10F
Q259	B	C	9F
Q260	B	C	7F
Q261	B	C	6F
Q262	B	C	7F
Q263	B	C	9C
Q264	B	C	7C
Q265	B	C	6D
Q266	B	C	7D
Q267	B	C	10C
Q301	B	C	7J
Q302	B	C	7J
Q303	B	C	7J
Q304	B	C	6M
Q305	B	C	6M
Q306	B	C	6L
Q307	B	C	6L
Q308	B	C	6N
Q309	B	C	7M
Q310	B	C	7M
Q311	B	C	7M
Q312	B	C	19E
Q313	A	D	21B
Q314	B	C	8K
Q351	B	C	9J
Q352	B	C	13N
Q353	B	C	12N
Q401	B	C	19P
Q402	B	C	19P
Q403	B	C	19O
Q404	B	C	15O
Q405	B	C	15O
Q501	B	C	17J
Q502	B	C	17J
Q503	B	C	15J
Q701	B	C	13B
Q702	B	C	13E
Q703	B	C	15F
Q704	A	D	4E
Q705	A	D	18E
Q706	B	C	16C
Q707	B	C	17I
Q711	B	C	14F
Q851	B	C	18E
Q856	B	C	19E
Q857	B	C	19E
Q858	B	C	20H
Q859	B	C	20H
Q901	A	D	2L
Q902	A	D	2M
Q951	A	D	2E
Q952	B	C	2F
Q953	A	D	3D
Q954	B	C	3D
Q955	A	D	1E
Q956	A	D	3G
Q957	B	C	3F
Q958	A	D	4I
Q959	A	D	14O
Q960	A	D	10N
Q962	B	C	4D
Q1001	B	C	21L
Q1002	A	D	19N
Q1003	A	D	19N
Q1004	B	C	20O
Q1005	B	C	22O
Q1006	B	C	19J
Q1007	B	C	21N
Q1008	B	C	21M
Q1009	B	C	20N
Q1011	B	C	20O
Q1012	B	C	20N
Q1013	B	C	20M
Q1014	B	C	20N
Q1015	B	C	20N
Q1016	B	C	21M
Q1017	B	C	20P
Q1101	B	C	8M
Q1141	B	C	10K
Q1431	B	C	12O
Q1432	B	C	11O

RESISTOR

REF.NO.	LOCATION		
R1	B	C	8E
R2	B	C	8F
R3	B	C	8D
R4	B	C	8F
R5	B	C	9H
R6	B	C	9H
R7	B	C	10F
R8	B	C	10F
R9	B	C	9H
R10	B	C	6F
R11	B	C	6F
R12	B	C	7F
R13	B	C	7F
R14	B	C	8F
R15	B	C	8G
R16	B	C	8F
R17	B	C	10I
R18	B	C	10G
R20	B	C	10G
R21	B	C	6F
R22	B	C	5F
R23	B	C	10G
R24	B	C	12D
R25	B	C	10F
R27	B	C	6E
R28	B	C	7G
R29	B	C	6G
R30	B	C	10E
R31	B	C	6I
R32	B	C	6I
R33	B	C	5G
R34	B	C	9E
R35	B	C	6G
R36	B	C	9F
R37	B	C	9F
R39	B	C	8F
R41	B	C	7E
R43	B	C	7H
R44	B	C	8F
R45	B	C	9G
R46	B	C	10H
R47	B	C	10G
R48	B	C	10H
R49	B	C	10H
R50	B	C	15G
R51	B	C	10H
R52	B	C	15G
R53	B	C	16H
R54	B	C	8D
R55	B	C	7D
R56	B	C	7D
R57	B	C	6H
R58	B	C	6H
R59	B	C	5H
R64	B	C	15I
R65	B	C	6E
R66	B	C	7E
R67	B	C	8F
R69	A	D	10H
R101	B	C	13J
R102	B	C	13J
R103	B	C	14J
R104	B	C	13J
R105	B	C	13K
R106	B	C	14K
R107	B	C	14J
R111	B	C	12J
R221	B	C	15P
R222	A	D	15P
R251	B	C	10D
R252	B	C	10D
R253	B	C	9D
R254	B	C	9E
R255	B	C	8D
R256	B	C	9D
R257	B	C	8D
R258	B	C	8D
R259	B	C	9D
R260	B	C	10C
R261	B	C	9C
R262	B	C	9D
R263	B	C	10C
R264	B	C	10C
R265	B	C	10D
R266	B	C	9E
R267	B	C	9F
R269	B	C	8D
R270	B	C	6I
R271	B	C	6H
R272	B	C	6I
R273	B	C	10C
R277	B	C	6E
R280	B	C	9G
R281	B	C	10F
R282	B	C	9G
R283	B	C	11E
R284	B	C	9F
R285	B	C	7F
R286	B	C	7F
R287	B	C	7F
R288	B	C	6F
R289	B	C	7F
R290	B	C	10C
R291	B	C	10D
R292	B	C	8D
R293	B	C	8C
R294	B	C	7F
R295	B	C	5H
R296	B	C	6C
R297	B	C	7C
R298	B	C	7C
R299	B	C	6D
R301	B	C	9J
R302	B	C	8K
R303	B	C	9I
R304	B	C	8K
R305	B	C	9J
R306	B	C	9J
R307	B	C	9I
R308	B	C	9I
R310	B	C	8J
R311	B	C	8I
R312	B	C	7J
R313	B	C	7J
R314	B	C	7J
R315	B	C	6M
R316	B	C	6M
R317	B	C	6L
R318	B	C	6L
R319	B	C	9K
R320	B	C	8I
R321	B	C	8J
R322	B	C	8J
R323	B	C	7J
R331	B	C	7M
R332	B	C	6M
R333	B	C	7M
R334	B	C	7M
R335	B	C	7M
R336	B	C	7M
R337	B	C	7M
R338	B	C	7L
R339	B	C	7L
R340	B	C	7L
R341	A	D	21B
R342	A	D	20B
R343	A	D	20B
R351	B	C	9I
R352	B	C	13O
R353	B	C	13N
R354	B	C	12N
R355	B	C	12N
R401	B	C	17M
R402	B	C	17M
R403	B	C	15N
R404	B	C	15N
R405	B	C	15M
R406	B	C	15M
R407	B	C	15M
R408	B	C	15N
R409	B	C	15M
R410	B	C	15M
R411	B	C	15M
R412	B	C	16M
R413	B	C	16M
R414	B	C	17M
R415	B	C	18N
R416	B	C	17O
R417	B	C	17O
R418	B	C	18O
R419	B	C	17O
R420	B	C	17O
R421	B	C	17O
R422	B	C	18O
R423	B	C	17O
R424	B	C	17P
R425	B	C	17P
R426	B	C	16O
R427	B	C	16O
R428	B	C	16P
R429	B	C	16O
R430	B	C	16O
R431	B	C	16N
R432	B	C	15O
R433	B	C	15N
R434	B	C	15N
R435	B	C	17M
R436	B	C	15P
R437	B	C	15P
R438	B	C	15M
R441	B	C	18N
R442	B	C	18M
R443	B	C	15O
R444	B	C	15O
R501	B	C	16J
R502	B	C	16J
R503	B	C	16J
R504	B	C	16J
R505	B	C	16J
R506	B	C	15K
R507	B	C	15K
R508	B	C	18I
R509	B	C	15K
R701	B	C	13D
R702	B	C	13D
R703	B	C	13C
R704	B	C	13D
R705	B	C	13B
R706	B	C	13B
R707	B	C	14B
R708	A	D	14B
R709	A	D	14B
R710	A	D	14B
R711	A	D	14B
R712	B	C	14C
R713	B	C	14C
R714	B	C	15C
R715	B	C	15C
R716	B	C	15C
R717	B	C	15C
R718	B	C	15C
R719	B	C	16C
R720	B	C	15C
R721	B	C	13E
R722	B	C	16E
R723	A	D	17D
R724	B	C	16D
R725	B	C	16E
R726	B	C	16E
R727	B	C	16E
R728	B	C	16E
R729	B	C	16E
R730	B	C	16E
R731	B	C	15C
R732	B	C	6O
R733	B	C	16F
R734	B	C	14F
R735	B	C	15F
R736	B	C	16F
R737	B	C	13E
R738	B	C	15E
R739	B	C	15E
R740	B	C	15F
R741	B	C	15F
R742	B	C	15F
R743	B	C	15G
R744	B	C	16D
R745	B	C	14F
R746	B	C	14F
R747	B	C	14F
R748	B	C	14E
R749	B	C	14E
R750	B	C	16F
R751	B	C	16F
R752	B	C	17G
R753	B	C	14F
R754	B	C	13E
R755	A	D	13E
R756	A	D	13D
R757	A	D	13E
R758	A	D	13D
R759	B	C	13E
R760	A	D	16C
R761	A	D	16C
R762	A	D	19C
R763	A	D	19C
R764	A	D	17D
R765	B	C	13E
R766	B	C	12B
R767	A	D	12C
R768	B	C	3A
R769	A	D	13B
R770	B	C	13B
R771	A	D	13B
R772	B	C	18G
R773	B	C	16C
R774	B	C	14C
R775	A	D	13C
R776	B	C	14C
R777	A	D	13C
R778	B	C	2B
R779	B	C	2A
R780	B	C	7A
R781	B	C	7A
R782	B	C	7A
R783	B	C	16E
R784	B	C	16E
R785	A	D	16B
R786	A	D	11D
R787	B	C	9B
R788	A	D	14B
R789	A	D	14B
R790	B	C	12G
R791	B	C	17E
R792	B	C	17D
R793	B	C	13E
R794	B	C	1B
R795	B	C	2A
R796	B	C	17G
R800	B	C	2B
R801	B	C	2B
R802	B	C	2B
R803	B	C	2B
R804	B	C	2B
R805	A	D	19C
R806	A	D	19C
R807	A	D	16D
R808	B	C	13E
R809	B	C	12G
R810	B	C	12G
R811	B	C	15A
R812	B	C	9B
R814	A	D	17C
R815	B	C	12C
R816	A	D	12C
R817	B	C	14F
R818	B	C	14F
R819	B	C	15A
R820	B	C	9B
R821	A	D	16C
R828	B	C	17E
R829	B	C	14E
R830	B	C	16F
R831	B	C	17G
R832	B	C	17G
R833	B	C	17F
R834	B	C	18H
R835	B	C	18H
R840	B	C	21D
R841	B	C	21D
R842	B	C	21D
R843	B	C	21D
R844	B	C	20H
R845	B	C	20H
R851	B	C	21G
R852	B	C	21G
R853	B	C	21G
R854	B	C	20G
R855	B	C	21G
R856	B	C	20G
R857	B	C	21G
R858	B	C	20G
R859	B	C	20G
R860	B	C	20G
R861	B	C	19H
R862	B	C	19H
R863	B	C	19H
R864	B	C	19H
R865	B	C	19H
R866	B	C	19H
R867	B	C	18H
R868	B	C	18H
R869	B	C	18F
R870	B	C	18F
R871	B	C	18F
R872	B	C	18F
R874	B	C	18F
R876	B	C	18F
R877	A	D	18F
R878	B	C	19F
R879	B	C	19E
R880	B	C	19E
R881	B	C	18G
R882	B	C	18G
R883	B	C	20E
R884	B	C	20E
R885	B	C	20E
R886	B	C	20E
R887	B	C	20E
R888	B	C	20F
R889	B	C	20F
R890	B	C	6P
R891	B	C	6P
R892	A	D	20H
R893	B	C	20H
R894	B	C	19H
R895	B	C	20H
R896	A	D	20H
R897	B	C	18G
R901	A	D	3M
R902	A	D	3L
R903	A	D	3M
R904	A	D	2K
R905	A	D	2L
R906	B	C	2L
R908	A	D	1K
R909	B	C	3L
R910	B	C	3L
R911	B	C	2K
R951	B	C	4J
R952	A	D	4I
R953	A	D	4J
R954	B	C	4I
R955	A	D	4F
R956	B	C	4D
R957	A	D	1G
R958	B	C	2E
R959	B	C	2E
R960	B	C	2E
R961	B	C	2E
R963	A	D	2D
R964	A	D	1D
R965	B	C	3D
R966	B	C	3D
R967	B	C	2G
R968	B	C	2F
R970	A	D	1H
R971	B	C	2E
R972	B	C	14O
R973	B	C	1F
R974	B	C	1F
R975	B	C	2E
R976	B	C	14O
R977	A	D	1F
R978	B	C	10M
R979	B	C	11M
R1001	B	C	19N
R1002	B	C	19N
R1003	B	C	19O
R1004	B	C	19O
R1005	B	C	20O
R1006	B	C	21O
R1007	B	C	21O
R1008	B	C	22O
R1009	B	C	22O
R1010	B	C	22O
R1011	A	D	20J
R1012	B	C	21N
R1013	B	C	21M
R1016	B	C	21N
R1017	B	C	20J
R1020	B	C	19P
R1021	B	C	20O
R1022	B	C	20O
R1023	B	C	20O
R1024	B	C	20O
R1025	B	C	19M
R1026	B	C	22G
R1027	B	C	21G
R1030	B	C	22M
R1031	A	D	22K
R1032	A	D	22K
R1033	A	D	22K
R1034	B	C	22L
R1035	A	D	22K
R1036	A	D	22J
R1037	B	C	19J
R1038	B	C	19J
R1041	B	C	20N
R1042	B	C	20N
R1043	B	C	20M
R1044	B	C	20M
R1045	B	C	20N
R1046	B	C	20N
R1047	B	C	21P
R1048	B	C	19O
R1049	B	C	19O
R1057	B	C	21L
R1058	B	C	21L
R1059	B	C	21L
R1060	B	C	20N
R1101	B	C	8L
R1102	B	C	8L
R1103	B	C	8M
R1104	B	C	9M
R1105	B	C	9M
R1106	B	C	9M
R1107	B	C	8M
R1108	B	C	9L
R1109	B	C	9L
R1110	B	C	10L
R1111	B	C	10L
R1112	B	C	11K
R1113	B	C	11L
R1114	B	C	12C
R1141	B	C	9K
R1142	B	C	10L
R1143	B	C	10K
R1431	B	C	12O
R1432	B	C	12O
R1433	B	C	12O
R1434	B	C	11O
R1435	B	C	11O
R1436	B	C	10O
R1437	B	C	11O
R1438	B	C	16P
R1439	B	C	12O

TEST POINT

REF.NO.	LOCATION		
TP106	A	D	11L
TP111	A	D	13L
TP333	A	D	7L
TP334	A	D	20E
TP553	A	D	15L
TP701	A	D	12B
TP702	A	D	13F
TP901	A	D	2D
TP1101	A	D	7K
TPGND	A	D	3D

OTHERS

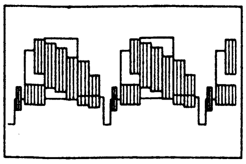
REF.NO.	LOCATION		
CF701	A	D	14D
CF851	A	D	19G
F901	A	D	1O
FL254	A	D	7F
K901	A	D	2K
LF901	A	D	2P
LF902	A	D	4P
PC901	A	D	4L
PS701	A	D	9B
PS702	A	D	15B
T301	A	D	7M
T302	A	D	21C
T901	A	D	2K
T1001	A	D	21P
T1002	A	D	20J
TU1001	A	D	20P
UN1001	A	D	21L
UN1501	A	D	22C
X1	A	D	9I
X2	A	D	9I
X701	A	D	14D
X1141	A	D	10K

WAVEFORMS

MAIN

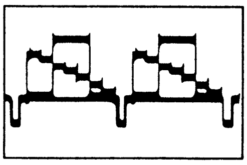
— VIDEO/N. N.AUDIO —

WF1 IC1-61



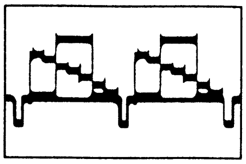
REC 0.81 Vp-p
20 mV/20 µsec/DIV

WF2 IC1-66



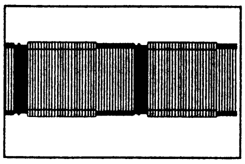
PB 0.57 Vp-p
20 mV/20 µsec/DIV

WF3 IC1-70



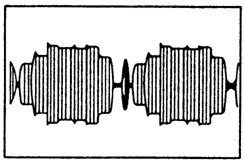
REC/PB 0.57 Vp-p
20 mV/20 µsec/DIV

WF4 IC1-6



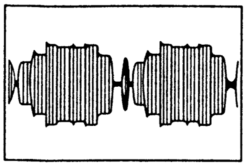
REC 0.42 Vp-p
20 mV/20 µsec/DIV

WF5 IC1-13



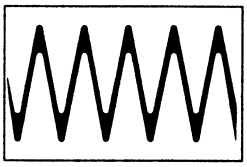
PB 0.6 Vp-p
20 mV/20 µsec.DIV

WF6 IC1-15



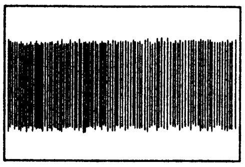
REC 0.42 Vp-p
20 mV/20 µsec/DIV

WF7 IC1-34



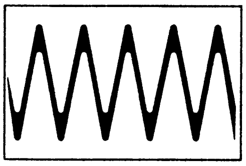
REC 2.1 Vp-p
1 V/50 msec/DIV

WF8 IC1-38



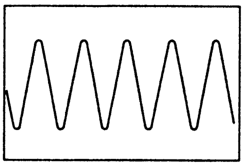
PB 0.04 Vp-p
5 mV/20 µsec/DIV

WF9 IC1-43



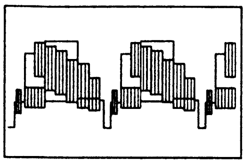
REC 0.3 Vp-p
10 mV/1 msec/DIV

WF10 IC1-46



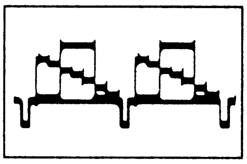
REC/PB 1.4 Vp-p
50 mV/2 msec/DIV

WF11 IC1-57



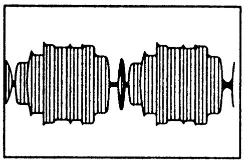
REC/PB 2.5 Vp-p
0.1 V/20 µsec/DIV

WF12 IC2-5



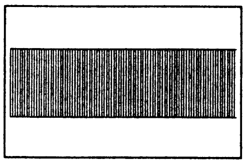
PB 0.46 Vp-p
20 mV/20 µsec/DIV

WF13 IC2-8



PB 0.38 Vp-p
20 mV/20 µsec/DIV

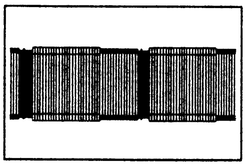
WF14 TP333
A.ERASE



REC 37.9 Vp-p
1 V/50 msec/DIV

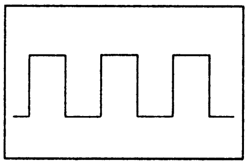
— PRE/REC —

WF1 TP106
PB FM



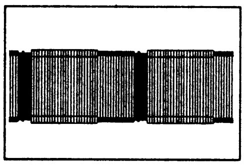
PB 0.38 Vp-p
20 mV/5 msec/DIV

WF2 TP111
D.FF



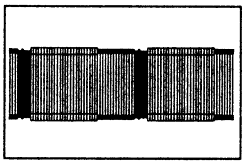
REC/PB 5.9 Vp-p
0.2 V/10 msec/DIV

WF3 IC101-22



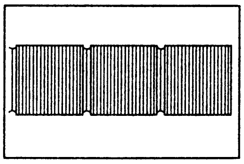
PB 0.41 Vp-p
20 mV/5 msec/DIV

WF4 IC101-28



REC 0.05 Vp-p
5 mV/5 msec/DIV

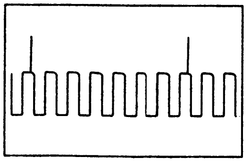
WF5 IC101-4



REC 2.7 Vp-p
50 mV/1 msec/DIV

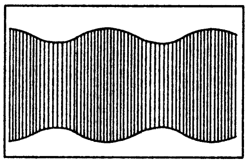
— SERVO —

WF1 IC1101-22
D.PG/FG



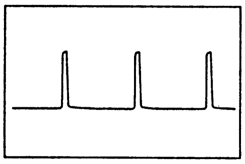
REC/PB 4.3 Vp-p
0.1 V/2 msec/DIV

WF2 IC1101-17
CAP.FG



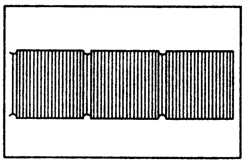
REC/PB 1.8 Vp-p
0.1 V/10 msec/DIV

WF3 IC1101-2
C.SYNC



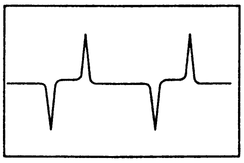
REC 5.1 Vp-p
0.1 V/20 µsec/DIV

WF4 IC1101-3
FSC



REC/PB 0.7 Vp-p
20 mV/5 msec/DIV

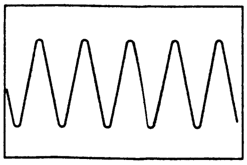
WF5 TP1101
CTL PULSE



PB 3.4 Vp-p
0.1 V/10 msec/DIV

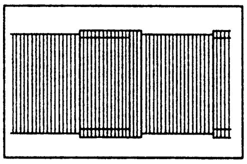
— FMA —

WF1 IC401-7



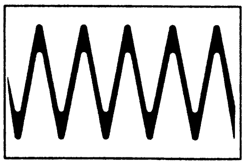
REC 0.3 Vp-p
0.1 mV/1 msec/DIV

WF2 IC401-15



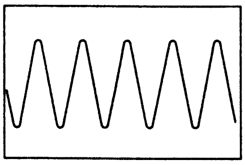
REC 0.3 Vp-p
10 mV/1 msec/DIV

WF3 IC401-38



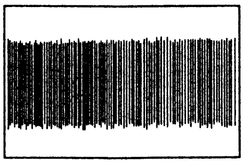
REC 0.26 Vp-p
10 mV/1 msec/DIV

WF4 IC401-46



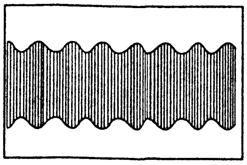
REC/PB 1.5 Vp-p
50 mV/1 msec/DIV

WF5 IC501-9



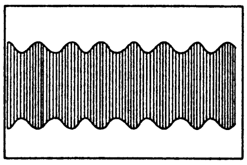
REC 0.3 Vp-p
20 mV/1 msec/DIV

WF6 IC501-16



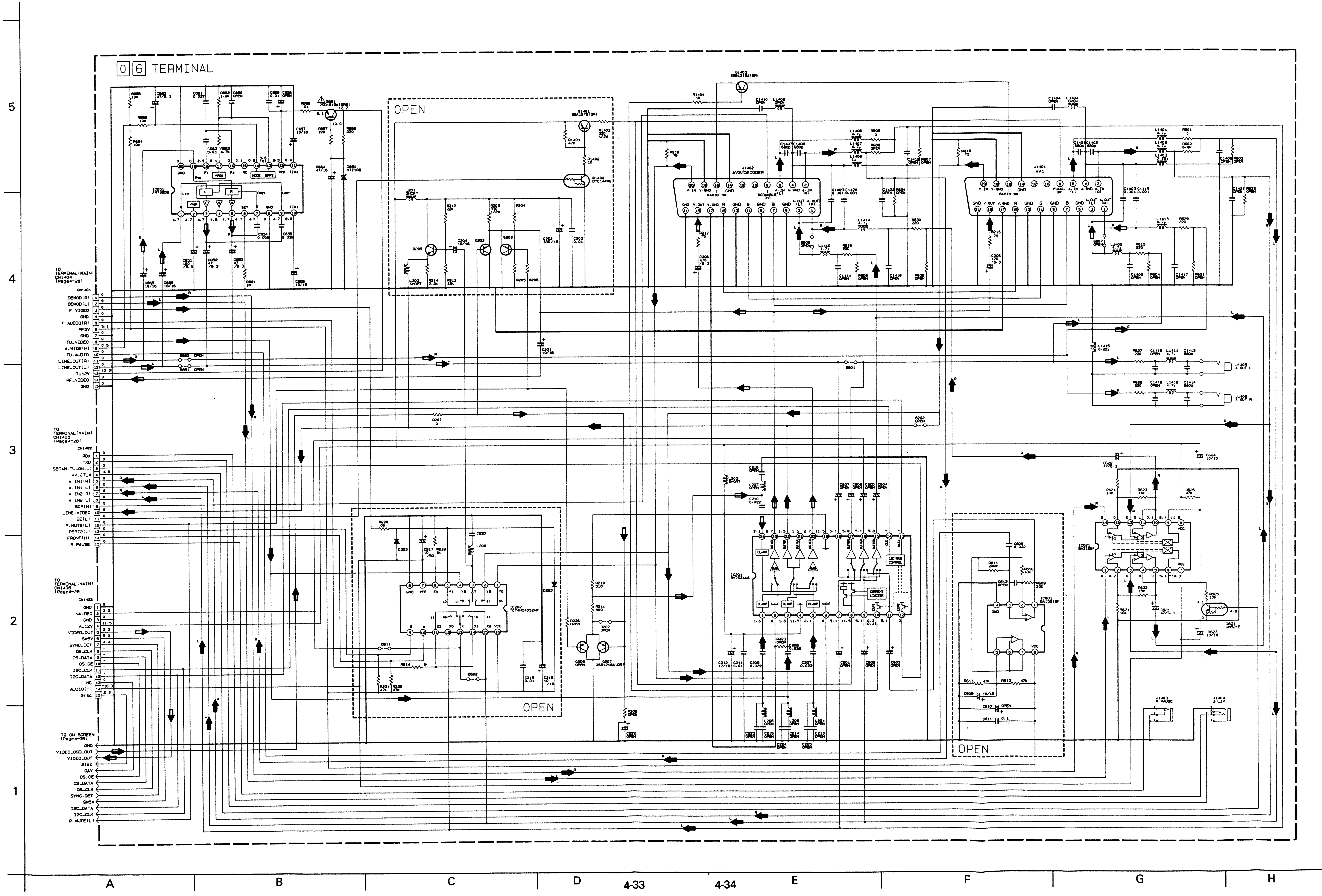
REC 3.1 Vp-p
0.1 V/1 msec/DIV

WF7 TP553
A.PB FM



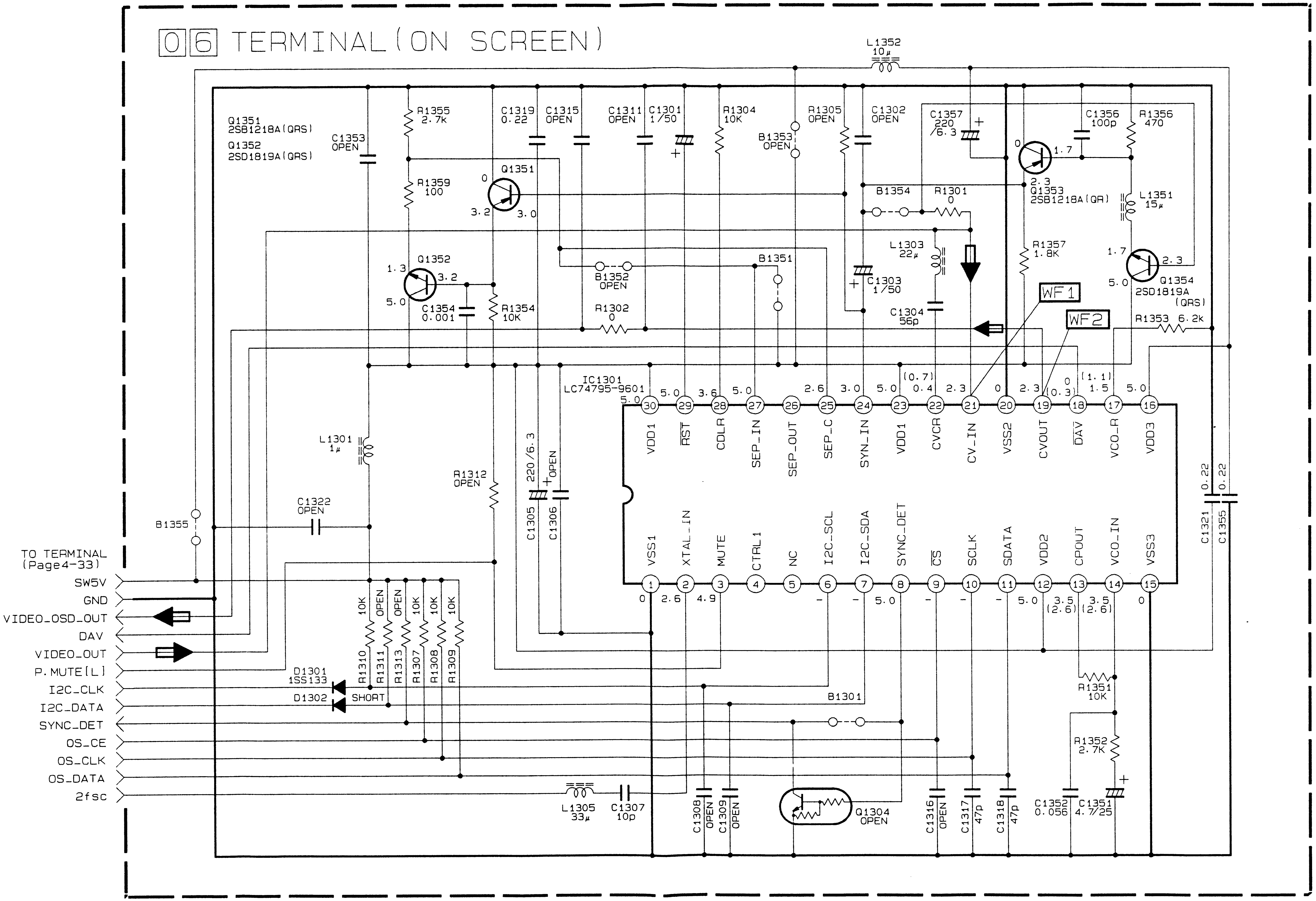
PB 0.4 Vp-p
20 mV/5 msec/DIV

4.15 TERMINAL SCHEMATIC DIAGRAM



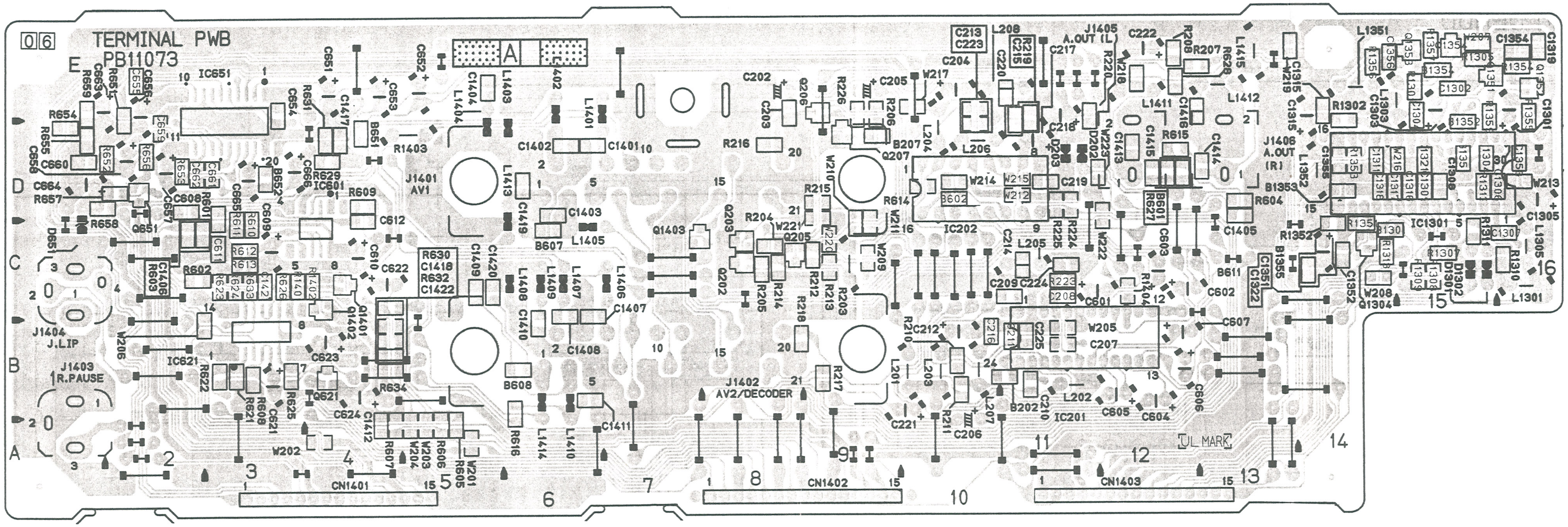
06 TERMINAL
OPEN
TO TERMINAL(MAIN) CN1404 (Page4-28)
CN1401
DEMOD(R)
DEMOD(L)
F.VIDEO
GND
F.AUDIO(R)
RF5V
GND
TU_VIDEO
A.WIDE(H)
TU_AUDIO
LINE_OUT(R)
LINE_OUT(L)
TU12V
RF_VIDEO
GND
TO TERMINAL(MAIN) CN1405 (Page4-28)
CN1402
RDX
TXD
SECAM_TU_ON(L)
AV_CTL4
A.IN1(R)
A.IN1(L)
A.IN2(R)
A.IN2(L)
SCR(H)
LINE_VIDEO
EE(L)
P.MUTE(L)
PERI2(L)
FRONT(H)
R.PAUSE
TO TERMINAL(MAIN) CN1406 (Page4-28)
CN1403
GND
NA_REC
GND
AL12V
VIDEO_OUT
SW5V
SYNC_DET
OS_CLK
OS_DATA
OS_CE
I2C_CLK
I2C_DATA
NC
AUDIO(-)
2fsc
TO ON SCREEN (Page4-35)
GND
VIDEO_OSD_OUT
VIDEO_OUT
2fsc
DAV
OS_CE
OS_DATA
OS_CLK
SYNC_DET
SW5V
I2C_DATA
I2C_CLK
P.MUTE(L)
IC651 AN7368
IC202 TC74HC4052AP
IC201 BH7834AS
IC601 BA15218F
IC621 BA3129F
J1402 AV2/DECODER
J1401 AV1
J1405 A.OUT L
J1406 A.OUT R
J1403 R.PAUSE
J1404 J.LIP
Q1403 2SB1218A(QR)
Q1401 2SA1576(QR)
Q1402 DTC144WU
Q651 2SD1819A(QRS)
Q207 2SB1218A(QR)
Q621 UN521E
1
2
3
4
5
A
B
C
D
E
F
G
H

4.16 ON SCREEN SCHEMATIC DIAGRAM


06 TERMINAL (ON SCREEN)
L1352 10μ
Q1351 2SB1218A(QRS)
Q1352 2SD1819A(QRS)
C1353 OPEN
R1355 2.7K
R1359 100
Q1351
Q1352
C1354 0.001
R1354 10K
C1319 0.22
C1315 OPEN
C1311 OPEN
C1301 1/50
R1304 10K
B1353 OPEN
R1305 OPEN
C1302 OPEN
C1357 220/6.3
C1356 100p
R1356 470
Q1353 2SB1218A(QR)
L1351 15μ
R1357 1.8K
Q1354 2SD1819A (QRS)
R1353 6.2k
B1354
R1301 0
L1303 22μ
C1303 1/50
C1304 56p
B1351
B1352 OPEN
R1302 0
WF1
WF2
IC1301 LC74795-9601
VDD1
RST
CDLR
SEP_IN
SEP_OUT
SEP_C
SYN_IN
VDD1
CVCR
CV_IN
VSS2
CVOUT
DAV
VCO_R
VDD3
VSS1
XTAL_IN
MUTE
CTRL1
NC
I2C_SCL
I2C_SDA
SYNC_DET
CS
SCLK
SDATA
VDD2
CPOUT
VCO_IN
VSS3
L1301 1μ
R1312 OPEN
C1305 220/6.3
C1306 OPEN
C1322 OPEN
B1355
C1321 0.22
C1355 0.22
TO TERMINAL (Page4-33)
SW5V
GND
VIDEO_OSD_OUT
DAV
VIDEO_OUT
P.MUTE[L]
I2C_CLK
I2C_DATA
SYNC_DET
OS_CE
OS_CLK
OS_DATA
2fsc
R1310 10K
R1311 OPEN
R1313 OPEN
R1307 10K
R1308 10K
R1309 10K
D1301 1SS133
D1302 SHORT
B1301
L1305 33μ
C1307 10p
C1308 OPEN
C1309 OPEN
Q1304 OPEN
C1316 OPEN
C1317 47p
C1318 47p
C1352 0.056
C1351 4.7/25
R1351 10K
R1352 2.7K

NOTE : For ON SCREEN waveforms, please refer to page4-38.

4.17 TERMINAL CIRCUIT BOARD AND WAVEFORMS



COMPONENT PARTS LOCATION GUIDE <TERMINAL>

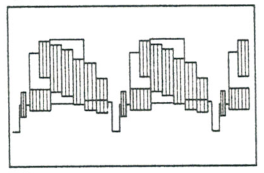
REF.NO.	LOCATION		
CAPACITOR			
C202	A	D	8E
C203	B	C	8E
C204	A	D	10E
C205	A	D	9E
C206	A	D	10A
C207	B	C	11B
C208	B	C	11C
C209	B	C	11C
C210	B	C	11B
C211	B	C	11B
C212	A	D	10B
C213	B	C	10E
C214	B	C	11C
C215	B	C	11D
C216	B	C	10B
C217	A	D	11D
C218	A	D	11E
C219	B	C	11D
C220	B	C	11E
C221	A	D	10B
C222	A	D	12E
C223	B	C	10D
C224	B	C	11C
C225	B	C	11B
C601	A	D	11C
C602	A	D	12C
C603	A	D	12C
C604	A	D	12B
C605	A	D	12B
C606	A	D	12B
C607	A	D	12B
C608	B	C	2D
C609	A	D	3C
C610	A	D	4C
C611	B	C	3C
C612	B	C	4C
C621	A	D	3B
C622	A	D	4C
C623	A	D	4B
C624	A	D	4B
C651	A	D	4E
C652	A	D	5E
C653	A	D	4E
C654	B	C	3E
C655	B	C	2E
C656	A	D	2E
C657	A	D	2D
C658	A	D	2D
C659	B	C	2D
C660	B	C	1D
C661	B	C	3D
C662	B	C	2D
C663	A	D	1E
C664	A	D	1D
C665	A	D	3D
C666	A	D	3D
C1301	A	D	16D
C1302	B	C	15E
C1303	A	D	15D
C1304	B	C	15D
C1305	A	D	16D
C1306	B	C	16D
C1307	B	C	16C
C1308	B	C	15D
C1309	B	C	15D
C1311	B	C	14D
C1315	B	C	14E
C1316	B	C	15D
C1317	B	C	14D
C1318	B	C	14D
C1319	B	C	16E
C1321	B	C	15D
C1322	B	C	14C
C1351	A	D	14C
C1352	B	C	14C
C1353	B	C	16D
C1354	B	C	16E
C1355	B	C	14D
C1356	B	C	14E
C1357	A	D	14D
C1401	B	C	6D
C1402	B	C	6D
C1403	B	C	6D
C1404	B	C	5E
C1405	B	C	13C
C1406	B	C	2C
C1407	B	C	6C
C1408	B	C	6C
C1409	B	C	5C
C1410	B	C	6B
C1411	B	C	6B
C1412	B	C	4A
C1413	B	C	12D
C1414	B	C	13D
C1415	B	C	12D
C1416	B	C	12E
C1417	B	C	4D
C1418	B	C	4B
C1419	B	C	6D
C1420	B	C	5C
C1421	B	C	3C
C1422	B	C	4B
CONNECTOR			
CN1401	A	D	3A
CN1402	A	D	8A
CN1403	A	D	11A
DIODE			
D202	A	D	11D
D203	A	D	11D
D651	A	D	1C
D1301	A	D	15C
D1302	A	D	15C
IC			
IC201	A	D	11C
IC202	A	D	10D
IC601	B	C	4C
IC621	B	C	3B
IC651	B	C	3D
IC1301	A	D	16D
COIL			
L201	A	D	10B
L202	A	D	11B
L203	A	D	10B
L204	A	D	10E
L205	A	D	11C
L206	A	D	10D
L207	A	D	10B
L208	A	D	10E
L1301	A	D	16C
L1303	A	D	15D
L1305	A	D	16C
L1351	A	D	14E
L1352	A	D	14D
L1401	A	D	7D
L1402	A	D	6D
L1403	A	D	6D
L1404	A	D	5E
L1405	A	D	7C
L1406	A	D	7C
L1407	A	D	6C
L1408	A	D	6C
L1409	A	D	6C
L1410	A	D	6A
L1411	A	D	12E
L1412	A	D	13E
L1413	A	D	6C
L1414	A	D	6A
L1415	A	D	13E
TRANSISTOR			
Q202	B	C	8C
Q203	B	C	8C
Q205	B	C	8C
Q206	B	C	9E
Q207	B	C	9D
Q621	B	C	4B
Q651	B	C	2D
Q1304	B	C	14C
Q1351	B	C	15E
Q1352	B	C	16E
Q1353	B	C	15E
Q1354	B	C	15E
Q1401	B	C	4C
Q1402	B	C	4C
Q1403	B	C	7C
RESISTOR			
R203	A	D	9C
R204	B	C	8C
R205	B	C	8C
R206	B	C	9E
R207	B	C	13E
R208	B	C	12E
R210	B	C	10B
R211	B	C	10B
R212	B	C	9C
R213	B	C	9C
R214	B	C	8C
R215	B	C	9D
R216	B	C	8D
R217	B	C	9B
R218	B	C	9B
R219	B	C	11D
R220	B	C	11D
R223	B	C	11C
R224	B	C	11D
R225	B	C	11D
R226	B	C	9E
R601	B	C	3D
R602	B	C	2C
R603	B	C	2C
R604	B	C	13D
R605	B	C	5A
R606	B	C	5A
R607	B	C	4A
R608	B	C	3B
R609	B	C	4D
R610	B	C	3C
R611	B	C	3C
R612	B	C	3C
R613	B	C	3C
R614	B	C	10D
R615	B	C	12D
R616	B	C	6B
R621	B	C	3B
R622	B	C	3B
R623	B	C	3C
R624	B	C	3C
R625	B	C	3B
R626	B	C	3C
R627	B	C	12D
R628	B	C	12E
R629	B	C	4D
R630	B	C	4C
R631	B	C	4D
R632	B	C	4B
R633	B	C	3C
R634	B	C	4B
R651	B	C	2E
R652	B	C	2D
R653	B	C	2D
R654	B	C	1D
R655	B	C	1D
R656	B	C	2D
R657	B	C	2D
R658	B	C	1D
R659	B	C	1E
R1301	B	C	15E
R1302	B	C	14D
R1304	B	C	15D
R1305	B	C	15E
R1307	B	C	15C
R1308	B	C	15C
R1309	B	C	15C
R1310	B	C	16C
R1311	B	C	15C
R1312	B	C	15D
R1313	B	C	14C
R1351	B	C	14C
R1352	B	C	14C
R1353	B	C	14D
R1354	B	C	16E
R1355	B	C	16D
R1356	B	C	14E
R1357	B	C	15E
R1359	B	C	15D
R1401	B	C	3C
R1402	B	C	4C
R1403	A	D	4D
R1404	B	C	12C
OTHERS			
J1401	A	D	7D
J1402	A	D	7B
J1403	A	D	1A
J1404	A	D	1C
J1405	A	D	12D
J1406	A	D	13D

WAVEFORMS

TERMINAL

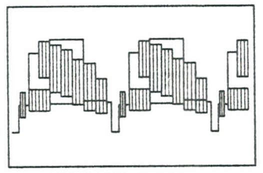
— ON SCREEN —

WF1 IC3101-21



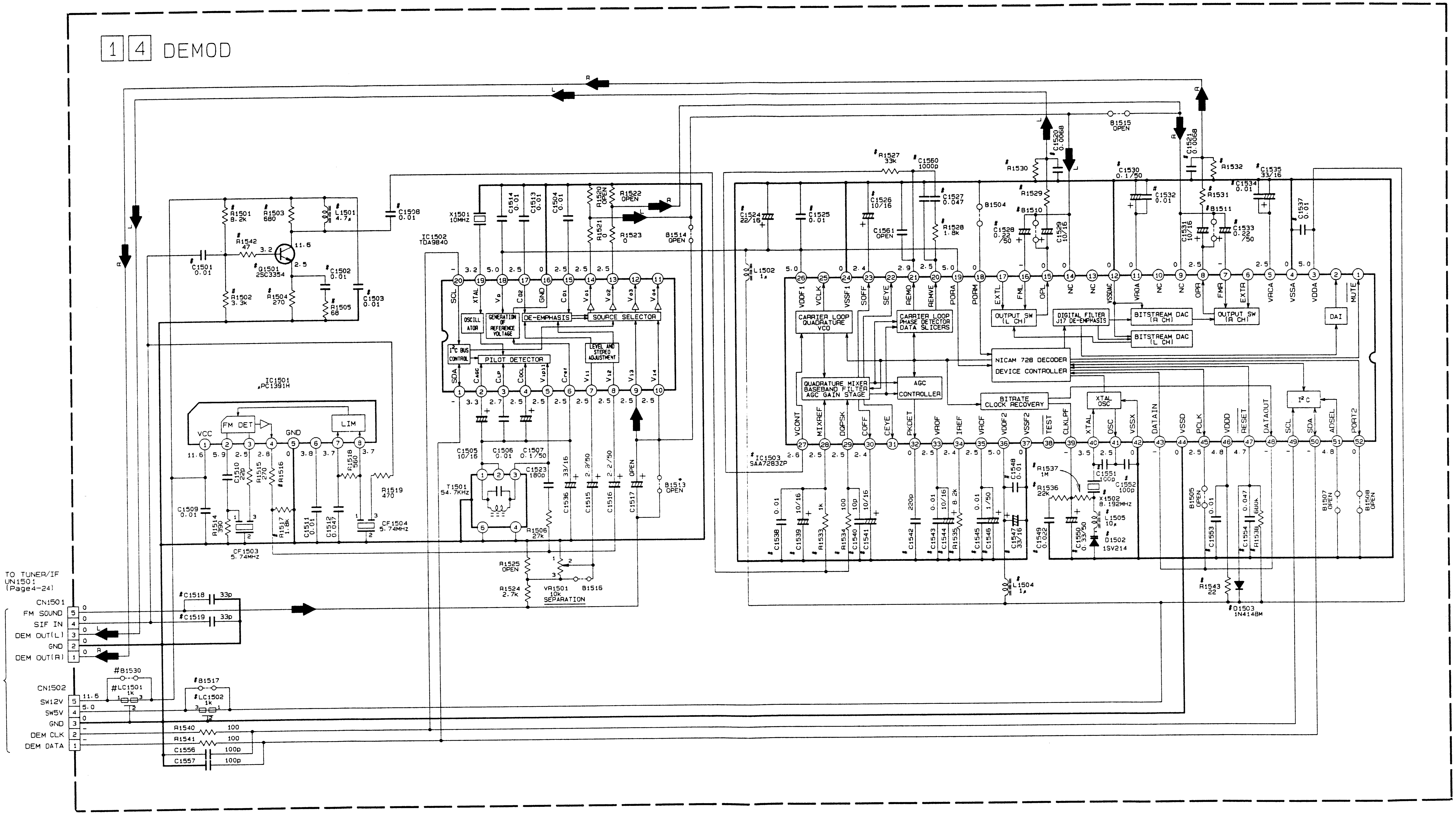
REC/PB 2.3
0.1 V/20 µsec/DIV

WF2 IC1301-19



REC/PB 2.3 Vp-p
0.1 V/20 µsec/DIV

4.18 DEMODULATOR SCHEMATIC DIAGRAM

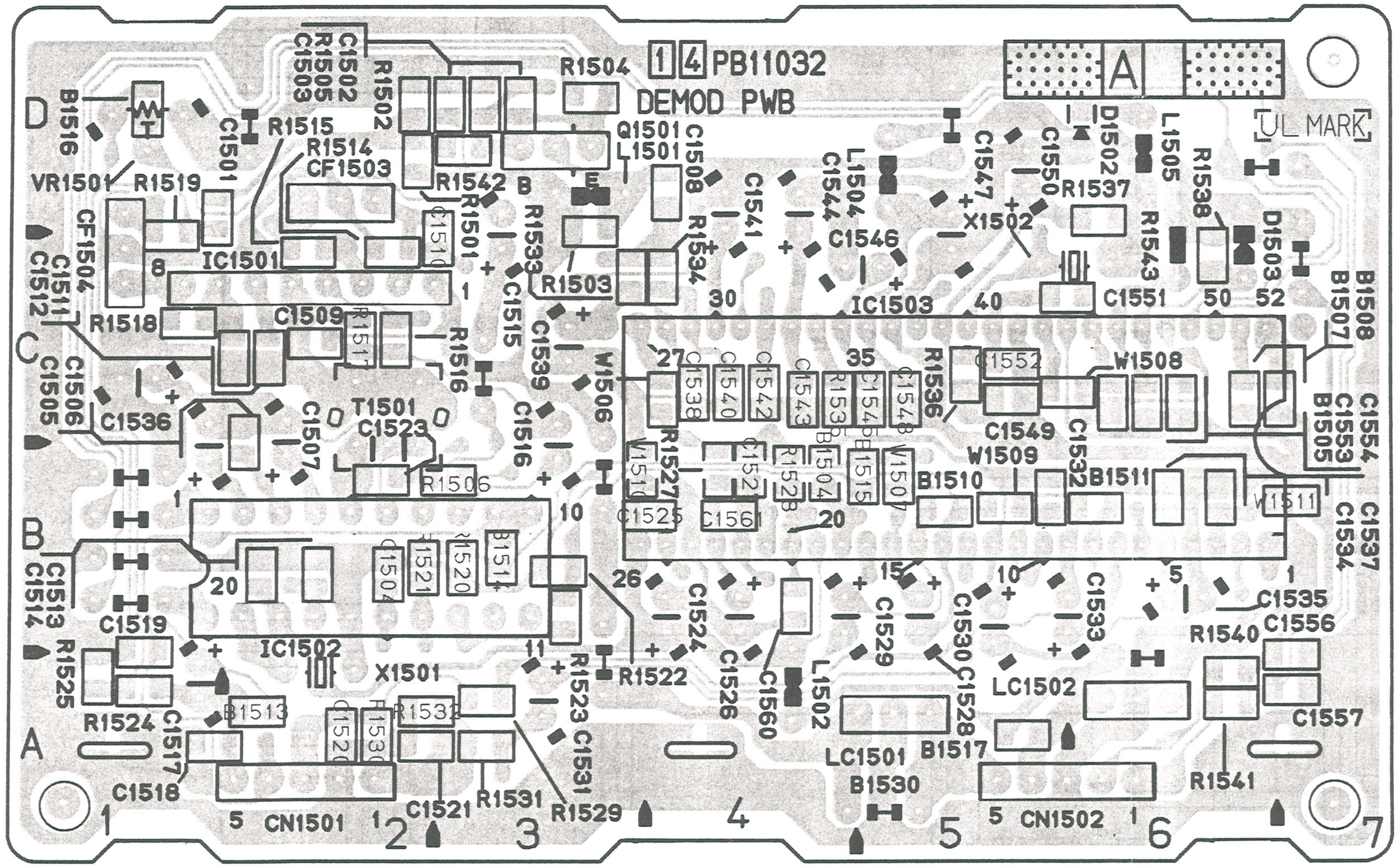


1 4 DEMOD
IC1501 μPC1391H
IC1502 TDA9840
IC1503 SAA7283ZP
Q1501 2SC3354
TO TUNER/IF UN1501 (Page4-24)
CN1501
FM SOUND
SIF IN
DEM OUT(L)
GND
DEM OUT(R)
CN1502
SW12V
SW5V
GND
DEM CLK
DEM DATA
FM DET
LIM
I²C BUS CONTROL
PILOT DETECTOR
DE-EMPHASIS
SOURCE SELECTOR
LEVEL AND STEREO ADJUSTMENT
OSCILLATOR
GENERATION OF REFERENCE VOLTAGE
CARRIER LOOP QUADRATURE VCO
CARRIER LOOP PHASE DETECTOR DATA SLICERS
QUADRATURE MIXER BASEBAND FILTER AGC GAIN STAGE
AGC CONTROLLER
NICAM 728 DECODER DEVICE CONTROLLER
BITRATE CLOCK RECOVERY
XTAL OSC
OUTPUT SW (L CH)
OUTPUT SW (R CH)
DIGITAL FILTER J17 DE-EMPHASIS
BITSTREAM DAC (R CH)
BITSTREAM DAC (L CH)
DAI
I²C
VR1501 10k SEPARATION
X1501 10MHz
X1502 8.192MHz
T1501 54.7KHz
CF1503 5.74MHz
CF1504 5.74MHz
D1502 1SV214
D1503 1N4148M

NOTE: COMPARISON CHART OF MODELS & MARKS(#)

REF. No. / MODELS	R1501-R1505, R1542 C1501-C1503, C1508 L1501, Q1501	C1518 C1519	LC1501 LC1502	B1510 B1511 B1517 B1530	R1529 R1531	R1530 R1532	R1527, R1528, R1533-R1538 R1543, C1520, C1521, C1524-C1528 C1530, C1532-C1535, C1537-C1554 C1560, IC1503, D1502, D1503, X1502 L1504, L1505	R1516	R1517
HR-DD949EH	USED	OPEN	USED	OPEN	2.7k	2.2k	USED	2.7k	USED
HR-DD949E	OPEN	USED	OPEN	USED	4.7k	1k	OPEN	0Ω	OPEN

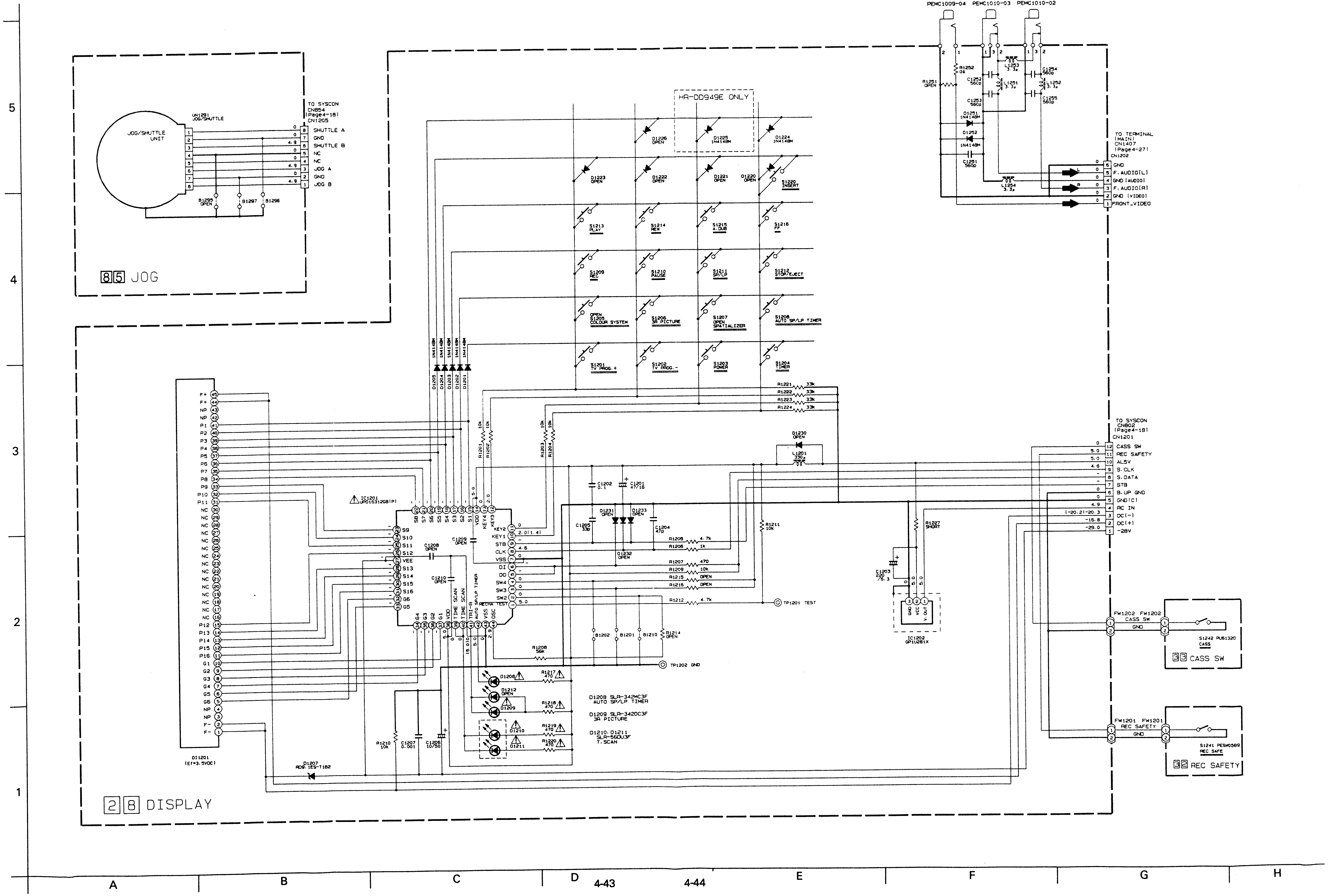
4.19 DEMODULATOR CIRCUIT BOARD


1 4 PB11032
DEMOD PWB
UL MARK
A
D
C
B
A
1
2
3
4
5
6
7
B1516
C1501
R1515
R1514
CF1503
C1502
R1505
C1503
R1502
R1504
Q1501
L1501
C1508
VR1501
R1519
CF1504
C1511
C1512
IC1501
R1542
R1501
R1533
R1534
R1503
C1541
C1544
L1504
C1546
C1547
C1550
X1502
D1502
R1537
L1505
R1543
R1538
D1503
B1508
B1507
C1551
IC1503
C1515
C1539
W1506
R1516
R1518
C1509
C1506
C1505
C1536
C1507
T1501
C1523
R1506
C1516
R1527
W1510
C1538
C1540
C1542
C1543
R1535
C1545
R1515
C1548
W1507
R1536
C1552
W1508
C1549
W1509
C1532
B1510
B1511
C1554
C1553
B1505
C1537
C1534
W1511
C1525
C1561
R1528
B1504
C1513
C1514
C1519
R1525
R1524
C1517
C1518
IC1502
X1501
B1513
C1520
C1504
C1521
R1520
B1514
R1532
C1530
C1521
R1531
R1529
C1531
R1523
R1522
C1524
C1526
C1560
L1502
C1529
C1530
C1528
C1533
C1535
C1556
R1540
LC1502
LC1501
B1517
B1530
C1557
R1541
CN1501
CN1502
5
1
8
20
10
11
26
27
30
35
40
50
52
15

COMPONENT PARTS LOCATION GUIDE < DEMODULATOR >

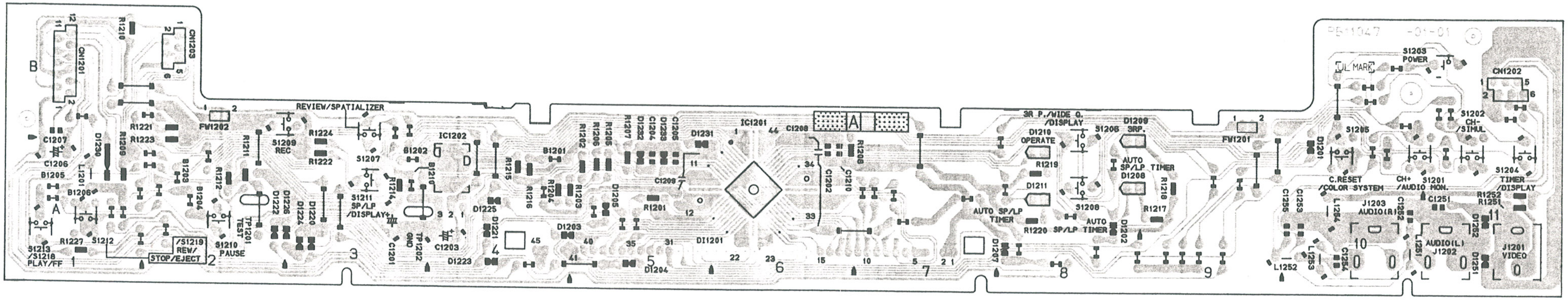
REF.NO.	LOCATION		
CAPACITOR			
C1501	B	C	1D
C1502	B	C	3D
C1503	B	C	3D
C1504	B	C	2B
C1505	A	D	1B
C1506	B	C	2C
C1507	A	D	2B
C1508	B	C	4D
C1509	B	C	2C
C1510	B	C	3C
C1511	B	C	2C
C1512	B	C	2C
C1513	B	C	2B
C1514	B	C	2B
C1515	A	D	3C
C1516	A	D	3B
C1517	A	D	1A
C1518	B	C	1A
C1519	B	C	1B
C1520	B	C	2A
C1521	B	C	2A
C1523	B	C	2B
C1524	A	D	4B
C1525	B	C	4B
C1526	A	D	4B
C1527	B	C	4B
C1528	A	D	5B
C1529	A	D	4B
C1530	A	D	5B
C1531	A	D	3A
C1532	B	C	5B
C1533	A	D	6B
C1534	B	C	6B
C1535	A	D	6B
C1536	A	D	1C
C1537	B	C	6B
C1538	B	C	4C
C1539	A	D	3C
C1540	B	C	4C
C1541	A	D	4D
C1542	B	C	4C
C1543	B	C	4C
C1544	A	D	4D
C1545	B	C	5C
C1546	A	D	5C
C1547	A	D	5D
C1548	B	C	5C
C1549	B	C	5C
C1550	A	D	5D
C1551	B	C	6C
C1552	B	C	5C
C1553	B	C	6C
C1554	B	C	6C
C1556	B	C	7A
C1557	B	C	7A
C1560	B	C	4B
C1561	B	C	4B
CONNECTOR			
CN1501	A	D	2A
CN1502	A	D	6A
DIODE			
D1502	B	C	6D
D1503	A	D	6C
IC			
IC1501	A	D	3C
IC1502	A	D	1B
IC1503	A	D	6B
COIL			
L1501	A	D	3D
L1502	A	D	4A
L1504	A	D	5D
L1505	A	D	6D
TRANSISTOR			
Q1501	A	D	3D
RESISTOR			
R1501	B	C	2D
R1502	B	C	2D
R1503	B	C	3D
R1504	B	C	3D
R1505	B	C	3D
R1506	B	C	3B
R1514	B	C	2C
R1515	B	C	2C
R1516	B	C	2C
R1517	B	C	2C
R1518	B	C	1C
R1519	B	C	1C
R1520	B	C	3B
R1521	B	C	2B
R1522	B	C	3B
R1523	B	C	3B
R1524	B	C	1A
R1525	B	C	1A
R1527	B	C	4B
R1528	B	C	4B
R1529	B	C	3A
R1530	B	C	2A
R1531	B	C	3A
R1532	B	C	2A
R1533	B	C	3C
R1534	B	C	4C
R1535	B	C	4C
R1536	B	C	5C
R1537	B	C	6D
R1538	B	C	6C
R1540	B	C	6A
R1541	B	C	6A
R1542	B	C	3D
R1543	A	D	6C
OTHERS			
CF1503	A	D	2D
CF1504	A	D	1C
LC1501	A	D	5A
LC1502	A	D	6A
T1501	A	D	2B
VR1501	A	D	1D
X1501	A	D	2A
X1502	A	D	6C

4.20 DISPLAY, REC SAFETY, CASSETTE SW AND JOG SCHEMATIC DIAGRAM


8 5 JOG
UN1291 JOG/SHUTTLE
JOG/SHUTTLE UNIT
B1295 OPEN
B1297
B1296
TO SYSCON CN854 (Page4-18)
CN1205
8 SHUTTLE A
7 GND
6 SHUTTLE B
5 NC
4 NC
3 JOG A
2 GND
1 JOG B
VIDEO IN J1201 PEMC1009-04
AUDIO(L) IN J1202 PEMC1010-03
AUDIO(R) IN J1203 PEMC1010-02
R1251 OPEN
R1252 0Ω
L1253 3.3μ
C1252 560p
L1251 3.3μ
C1253 560p
C1254 560p
L1252 3.3μ
C1255 560p
D1251 1N4148M
D1252 1N4148M
C1251 560p
L1254 3.3μ
TO TERMINAL (MAIN) CN1407 (Page4-27)
CN1202
6 GND
5 F.AUDIO(L)
4 GND (AUDIO)
3 F.AUDIO(R)
2 GND (VIDEO)
1 FRONT_VIDEO
HR-DD949E ONLY
D1226 OPEN
D1225 1N4148M
D1224 1N4148M
D1223 OPEN
D1222 OPEN
D1221 OPEN
D1220 OPEN
S1220 INSERT
S1213 PLAY
S1214 REW
S1215 A.DUB
S1216 FF
S1209 REC
S1210 PAUSE
S1211 SP/LP
S1212 STOP/EJECT
OPEN S1205 COLOUR SYSTEM
S1206 3R PICTURE
S1207 OPEN SPATIALIZER
S1208 AUTO SP/LP TIMER
S1201 TV PROG.+
S1202 TV PROG.-
S1203 POWER
S1204 TIMER
R1221 33k
R1222 33k
R1223 33k
R1224 33k
D1205 D1204 D1203 D1202 D1201 1N4148M
R1201 10k
R1202 10k
R1203 10k
R1204 10k
IC1201 UPD16312GB(P)
S8 S7 S6 S5 S4 S3 S2 S1 VDD KEY4 KEY3
KEY2 KEY1 STB CLK VSS DI DO SW4 SW3 SW2 MECHA TEST
S9 S10 S11 S12 VEE S13 S14 S15 S16 G6 G5
G4 G3 G2 G1 VDD TIME SCAN TIME SCAN TRI-R AUTO SP/LP TIMER VSS OSC
C1208 OPEN
C1209 OPEN
C1210 OPEN
C1202 0.1
C1201 47/16
C1205 33p
D1231 OPEN
D1233 OPEN
D1232 OPEN
C1204 470
D1230 OPEN
L1201 330μ
R1205 4.7k
R1206 1k
R1207 470
R1209 10k
R1215 OPEN
R1216 OPEN
R1212 4.7k
R1211 10k
R1227 SHORT
C1203 220/6.3
IC1202 GP1U281X
GND VCC V.OUT
TP1201 TEST
TP1202 GND
R1208 56k
B1202 B1201 B1210
R1214 OPEN
D1208 D1212 OPEN D1209 D1210 D1211
R1217 470
R1218 470
R1219 470
R1220 470
D1208 SLA-342MC3F AUTO SP/LP TIMER
D1209 SLA-342DC3F 3R PICTURE
D1210, D1211 SLA-56DU3F T.SCAN
R1210 10k
C1207 0.001
C1206 10/50
D1207 RD9.1ES-T1B2
DI1201 (Ef=3.5VDC)
F+ F+ NP NP P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 NC NP NP F- F-
P12 P13 P14 P15 P16 G1 G2 G3 G4 G5 G6
TO SYSCON CN802 (Page4-18)
CN1201
12 CASS SW
11 REC SAFETY
10 AL5V
9 S.CLK
8 S.DATA
7 STB
6 B.UP GND
5 GND(C)
4 RC IN
3 DC(-)
2 DC(+)
1 -28V
FW1202 FW1202 CASS SW GND
S1242 PU61320 CASS
3 3 CASS SW
FW1201 FW1201 REC SAFETY GND
S1241 PESW0589 REC SAFE
3 2 REC SAFETY
2 8 DISPLAY
A B C D E F G H
1 2 3 4 5

4.21 DISPLAY, REC SAFETY, CASSETTE SW AND JOG CIRCUIT BOARDS

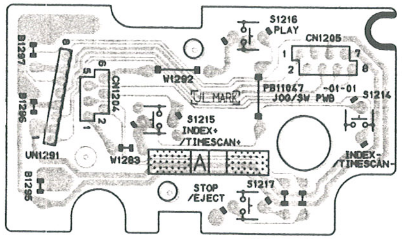
— DISPLAY —


CN1201
CN1203
FW1202
REVIEW/SPATIALIZER
S1209 REC
S1207
S1211 SP/LP /DISPLAY+
IC1202
IC1201
TP1201 TEST
TP1202
S1210 PAUSE
/S1219 REW/ STOP/EJECT
S1213 /S1218 PLAY/FF
S1212
3R P./WIDE G. /DISPLAY
D1210 OPERATE
S1206 SRP.
D1209
AUTO SP/LP TIMER
D1208
S1208
AUTO SP/LP TIMER
FW1201
S1203 POWER
UL MARK
CN1202
S1202 CH- /SIMUL
S1205
C.RESET /COLOR SYSTEM
CH+ /AUDIO MON.
S1201
S1204 TIMER /DISPLAY
J1203 AUDIO(R)
AUDIO(L) J1202
J1201 VIDEO
PB11047 -01-01
A
B
1
2
3
4
5
6
7
8
9
10
11

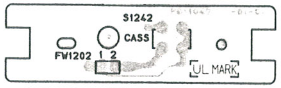
COMPONENT PARTS LOCATION GUIDE < DISPLAY >

REF.NO.	LOCATION		
CAPACITOR			
C1201	A	D	3A
C1202	A	D	6A
C1203	A	D	4A
C1204	A	D	5B
C1205	A	D	5B
C1206	A	D	1A
C1207	A	D	1B
C1208	A	D	6A
C1209	A	D	5A
C1210	A	D	6A
C1251	A	D	11A
C1252	A	D	10A
C1253	A	D	10A
C1254	A	D	10A
C1255	A	D	10A
CONNECTOR			
CN1201	A	D	1B
CN1202	A	D	11B
CN1203	A	D	2B
DIODE			
D1201	A	D	10A
D1202	A	D	8A
D1203	A	D	5A
D1204	A	D	5A
D1205	A	D	5A
D1207	A	D	8A
D1208	A	D	8A
D1209	A	D	8B
D1210	A	D	8A
D1211	A	D	8A
D1220	A	D	3A
D1221	A	D	4A
D1222	A	D	2A
D1223	A	D	4A
D1224	A	D	3A
D1225	A	D	4A
D1226	A	D	3A
D1230	A	D	1B
D1231	A	D	6B
D1232	A	D	5B
D1233	A	D	5B
D1251	A	D	11A
D1252	A	D	11A
IC			
IC1201	B	C	6A
IC1202	A	D	4A
COIL			
L1201	A	D	1A
L1251	A	D	10A
L1252	A	D	10A
L1253	A	D	10A
L1254	A	D	10A
RESISTOR			
R1201	A	D	5A
R1202	A	D	5A
R1203	A	D	5A
R1204	A	D	4A
R1205	A	D	5A
R1206	A	D	5A
R1207	A	D	5A
R1208	A	D	6B
R1209	A	D	1A
R1210	A	D	1B
R1211	A	D	2A
R1212	A	D	2A
R1214	A	D	3A
R1215	A	D	4A
R1216	A	D	4A
R1217	A	D	9A
R1218	A	D	9A
R1219	A	D	8A
R1220	A	D	8A
R1221	A	D	2B
R1222	A	D	3A
R1223	A	D	2B
R1224	A	D	3B
R1227	A	D	1A
R1251	A	D	11A
R1252	A	D	11A
SWITCH			
S1201	A	D	10A
S1202	A	D	11A
S1203	A	D	11B
S1204	A	D	11A
S1205	A	D	10A
S1206	A	D	8B
S1207	A	D	3B
S1208	A	D	8A
S1209	A	D	3B
S1210	A	D	2A
S1211	A	D	3A
S1212	A	D	1A
S1213	A	D	1A
TEST POINT			
TP1201	A	D	2A
TP1202	A	D	3A
OTHER			
DI1201	A	D	6A
J1201	A	D	11A
J1202	A	D	11A
J1203	A	D	10A

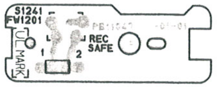
— JOG/SW —


S1216 PLAY
CN1205
B1297
B1296
CN1204
W1292
UL MARK
PB11047 -01-01 JOG/SW PWB
S1214
S1215 INDEX+ /TIMESCAN+
UN1291
W1283
A
INDEX- /TIMESCAN-
STOP /EJECT
S1217
B1295

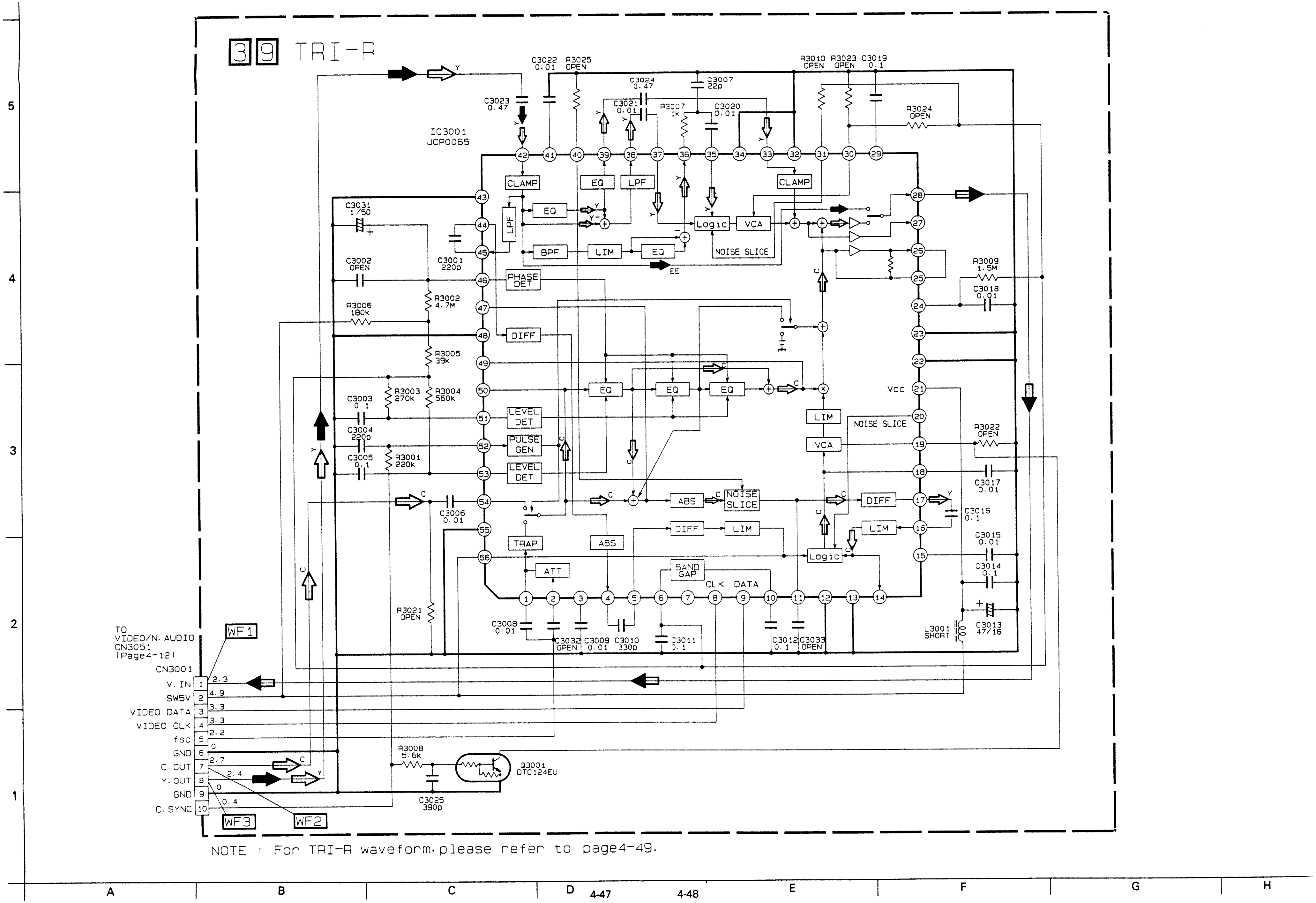
— CASSETTE SW —


S1242
CASS
FW1202
UL MARK

— REC SAFETY —

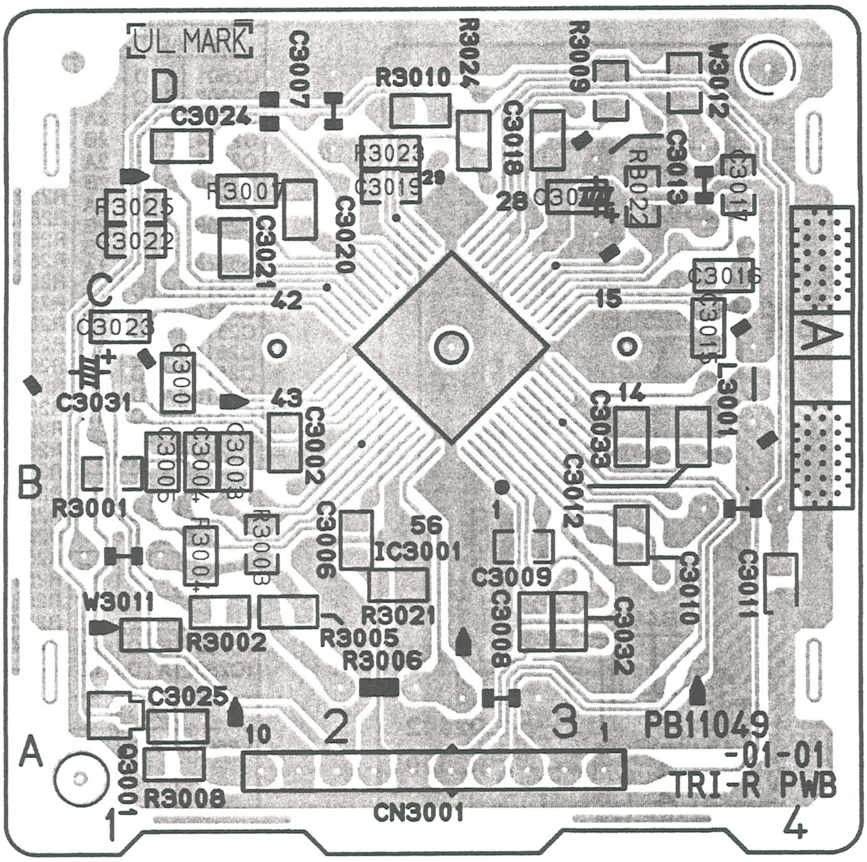

S1241
FW1201
UL MARK
REC SAFE

4.22 TRI-R SCHEMATIC DIAGRAM


39 TRI-R
IC3001
JCP0065
C3023 0.47
C3022 0.01
R3025 OPEN
C3024 0.47
C3021 0.01
R3007 1k
C3007 22p
C3020 0.01
R3010 OPEN
R3023 OPEN
C3019 0.1
R3024 OPEN
C3031 1/50
C3002 OPEN
C3001 220p
R3006 180k
R3002 4.7M
R3005 39k
R3003 270k
R3004 560k
C3003 0.1
C3004 220p
C3005 0.1
R3001 220k
C3006 0.01
R3021 OPEN
C3008 0.01
C3032 OPEN
C3009 0.01
C3010 330p
C3011 0.1
C3012 0.1
C3033 OPEN
R3009 1.5M
C3018 0.01
R3022 OPEN
C3017 0.01
C3016 0.1
C3015 0.01
C3014 0.1
C3013 47/16
L3001 SHORT
R3008 5.6k
C3025 390p
Q3001 DTC124EU
CLAMP
EQ
LPF
BPF
LIM
Logic
VCA
NOISE SLICE
PHASE DET
DIFF
LEVEL DET
PULSE GEN
TRAP
ATT
ABS
BAND GAP
CLK DATA
Vcc
EE
Y
C
TO VIDEO/N. AUDIO CN3051 (Page4-12)
CN3001
V. IN 1 2.3
SW5V 2 4.9
VIDEO DATA 3 3.3
VIDEO CLK 4 3.3
fsc 5 2.2
GND 6 0
C. OUT 7 2.7
Y. OUT 8 2.4
GND 9 0
C. SYNC 10 0.4
WF1
WF2
WF3
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTE : For TRI-R waveform, please refer to page4-49.

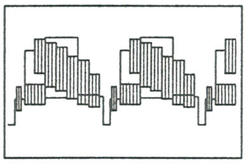
4.23 TRI-R CIRCUIT BOARD AND WAVEFORMS


UL MARK
D
C
B
A
1
2
3
4
C3007
R3010
R3024
R3009
W3012
C3024
R3023
C3019
C3018
C3013
RB022
C3017
R3025
R3001
C3020
C3021
28
29
C3022
C3016
C3023
42
15
C3031
43
14
C3033
L3001
C3002
C3012
R3001
C3006
56
IC3001
C3009
C3008
C3010
C3011
W3011
R3021
R3002
R3005
R3006
C3032
C3025
10
PB11049
-01-01
TRI-R PWB
Q3001
R3008
CN3001

WAVEFORMS

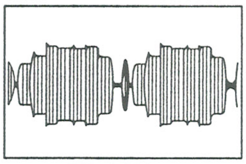
— TRI-R —

WF1 V.OUT CN3001-1



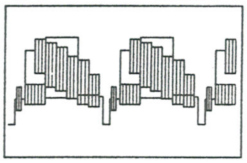
REC/PB 2.26 Vp-p
0.1 V/20 μsec/DIV

WF2 C.IN CN3001-7



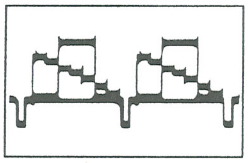
PB 0.5 Vp-p
20 mV/20 μsec/DIV

WF3 Y.IN CN3001-8



REC 2.26 Vp-p
0.1 V/20 μsec/DIV

WF3 Y.IN CN3001-8



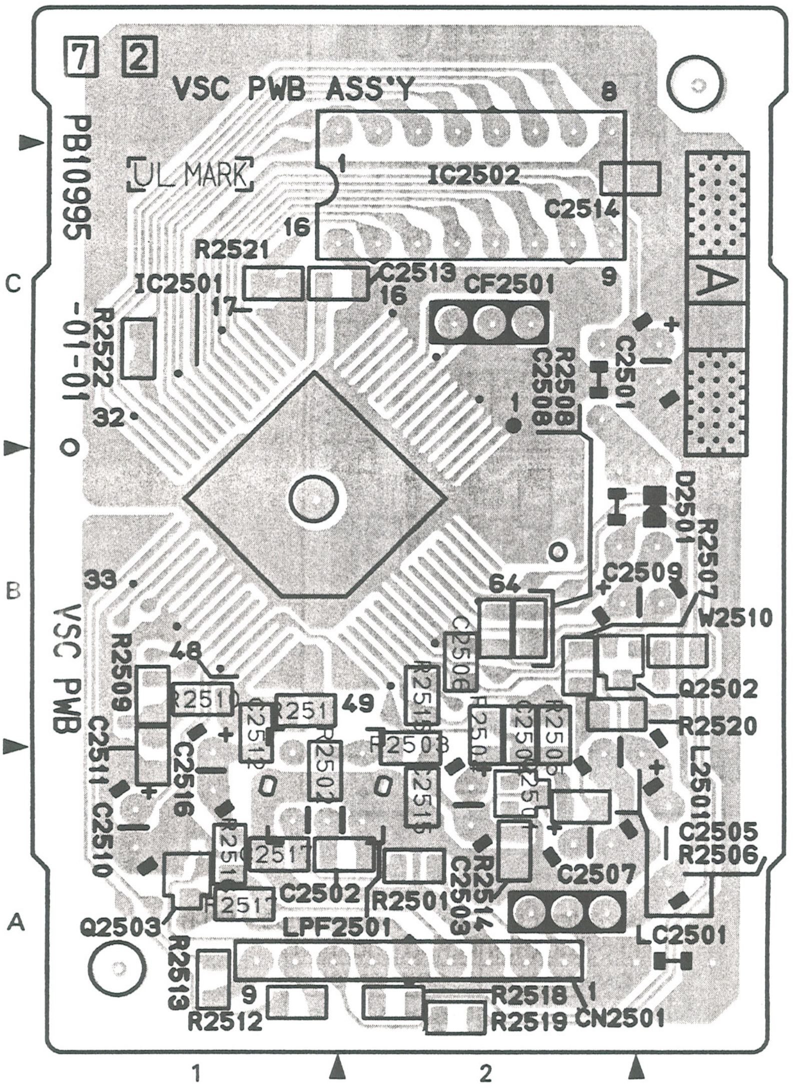
PB 2.26 Vp-p
0.1 V/20 μsec/DIV

COMPONENT PARTS LOCATION GUIDE < TRI-R >

REF.NO.	LOCATION			REF.NO.	LOCATION		
CAPACITOR				CONNECTOR			
C3001	B	C	1C	CN3001	A	D	3A
C3002	B	C	2B				
C3003	B	C	2B	IC			
C3004	B	C	1B	IC3001	B	C	2C
C3005	B	C	1B				
C3006	B	C	2B	COIL			
C3007	A	D	2D	L3001	A	D	4B
C3008	B	C	3B				
C3009	B	C	3B	TRANSISTOR			
C3010	B	C	3B				
C3011	B	C	4B	Q3001	B	C	1A
C3012	B	C	4B	RESISTOR			
C3013	A	D	3C	R3001	B	C	1B
C3014	B	C	3C	R3002	B	C	1B
C3015	B	C	4C	R3003	B	C	2B
C3016	B	C	4C	R3004	B	C	1B
C3017	B	C	4C	R3005	B	C	2B
C3018	B	C	3D	R3006	A	D	2A
C3019	B	C	2C	R3007	B	C	2C
C3020	B	C	2C	R3008	B	C	1A
C3021	B	C	2C	R3009	B	C	3D
C3022	B	C	1C	R3010	B	C	2D
C3023	B	C	1C	R3021	B	C	2B
C3024	B	C	1D	R3022	B	C	3C
C3025	B	C	1A	R3023	B	C	2D
C3031	A	D	1C	R3024	B	C	3D
C3032	B	C	3B	R3025	B	C	1C
C3033	B	C	3B				

4.24 VSC CIRCUIT BOARD AND WAVEFORMS

— VSC —


7
2
VSC PWB ASS'Y
PB10995
-01-01
UL MARK
IC2502
C2514
R2521
IC2501
C2513
CF2501
R2522
R2508
C2508
C2501
D2501
R2507
C2509
W2510
Q2502
R2520
L2501
C2505
R2506
C2507
LC2501
CN2501
R2519
R2518
R2512
R2513
Q2503
LPF2501
C2502
R2501
C2503
R2514
C2510
C2511
C2516
R2509
VSC PWB
A
1
8
9
16
17
32
33
48
49
64
C
B
A
1
2

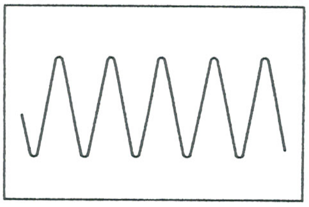
COMPONENT PARTS LOCATION GUIDE <VSC>

REF.NO.	LOCATION		
CAPACITOR			
C2501	A	D	3C
C2502	B	C	2A
C2503	A	D	2A
C2504	B	C	2B
C2505	A	D	2A
C2506	B	C	2B
C2507	A	D	2A
C2508	B	C	2B
C2509	A	D	2B
C2510	A	D	1A
C2511	B	C	1A
C2512	B	C	1B
C2513	B	C	1C
C2514	B	C	2C
C2515	B	C	2A
C2516	A	D	1A
C2517	B	C	1A
CONNECTOR			
CN2501	A	D	2A
DIODE			
D2501	A	D	3B
IC			
IC2501	B	C	1B
IC2502	A	D	1D
COIL			
L2501	A	D	3A
TRANSISTOR			
Q2501	B	C	2A
Q2502	B	C	2B
Q2503	B	C	1A
RESISTOR			
R2501	B	C	2A
R2502	B	C	1A
R2503	B	C	2B
R2504	B	C	2B
R2505	B	C	2B
R2506	B	C	2A
R2507	B	C	2B
R2508	B	C	2B
R2509	B	C	1B
R2510	B	C	1B
R2511	B	C	1B
R2512	B	C	1A
R2513	B	C	1A
R2514	B	C	2A
R2515	B	C	2B
R2516	B	C	1A
R2517	B	C	1A
R2518	B	C	2A
R2519	B	C	2A
R2520	B	C	2B
R2521	B	C	1C
R2522	B	C	1C
OTHER			
CF2501	A	D	2C
LC2501	A	D	2A
LPF2501	A	D	2A

WAVEFORMS

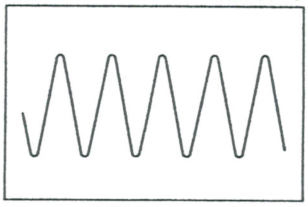
— VSC —

WF1 CN2501-2



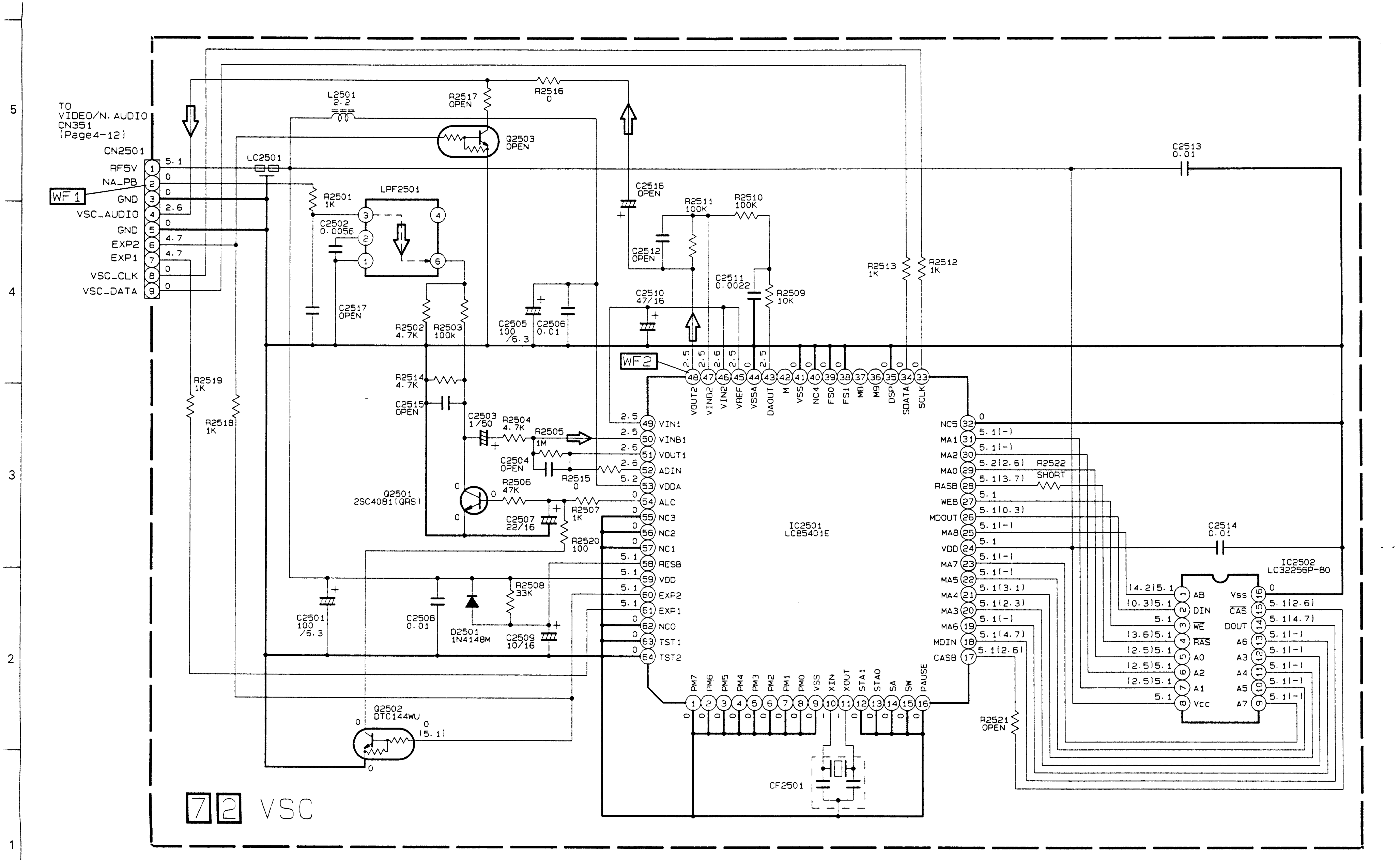
PB0.8Vp-p
50mV/1msec/DIV

WF2 IC2501-48



PB1.5Vp-p
50mV/1msec/DIV

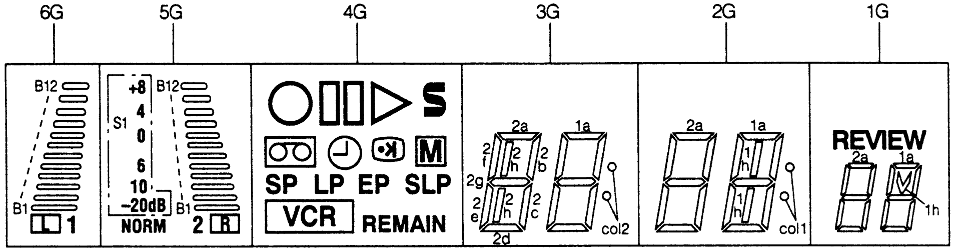
4.25 VSC SCHEMATIC DIAGRAM


TO
VIDEO/N. AUDIO
CN351
(Page4-12)
CN2501
RF5V
NA_PB
GND
VSC_AUDIO
GND
EXP2
EXP1
VSC_CLK
VSC_DATA
WF1
WF2
L2501 2.2
R2517 OPEN
R2516 0
Q2503 OPEN
LC2501
R2501 1K
LPF2501
C2502 0.0056
C2517 OPEN
R2502 4.7K
R2503 100k
C2505 100/6.3
C2506 0.01
C2516 OPEN
C2512 OPEN
R2511 100K
R2510 100K
C2511 0.0022
R2509 10K
C2510 47/16
R2513 1K
R2512 1K
C2513 0.01
R2514 4.7K
C2515 OPEN
C2503 1/50
R2504 4.7K
R2505 1M
C2504 OPEN
R2515 0
R2506 47K
Q2501 2SC4081(QRS)
C2507 22/16
R2507 1K
R2520 100
R2519 1K
R2518 1K
R2508 33K
C2501 100/6.3
C2508 0.01
D2501 1N4148M
C2509 10/16
Q2502 DTC144WU
IC2501 LC85401E
VIN1
VINB1
VOUT1
ADIN
VDDA
ALC
NC3
NC2
NC1
RESB
VDD
EXP2
EXP1
NC0
TST1
TST2
VOUT2
VINB2
VIN2
VREF
VSSA
DAOUT
M
VSS
NC4
FS0
FS1
MB
M9
DSP
SDATA
SCLK
NC5
MA1
MA2
MA0
RASB
WEB
MDOUT
MA8
VDD
MA7
MA5
MA4
MA3
MA6
MDIN
CASB
PM7
PM6
PM5
PM4
PM3
PM2
PM1
PM0
VSS
XIN
XOUT
STA1
STA0
SA
SW
PAUSE
CF2501
R2522 SHORT
R2521 OPEN
C2514 0.01
IC2502 LC32256P-80
AB
DIN
WE
RAS
A0
A2
A1
Vcc
Vss
CAS
DOUT
A6
A3
A4
A5
A7
72 VSC
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : For VSC waveforms, please refer to page4-50.

4.26 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT


6G
5G
4G
3G
2G
1G
B12
B1
1
+8
4
0
6
10
-20dB
S1
NORM
2
SP LP EP SLP
VCR
REMAIN
S
M
2a
1a
2f
2g
2e
2d
2b
2c
h
col2
col1
REVIEW
1h

ANODE CONNECTION

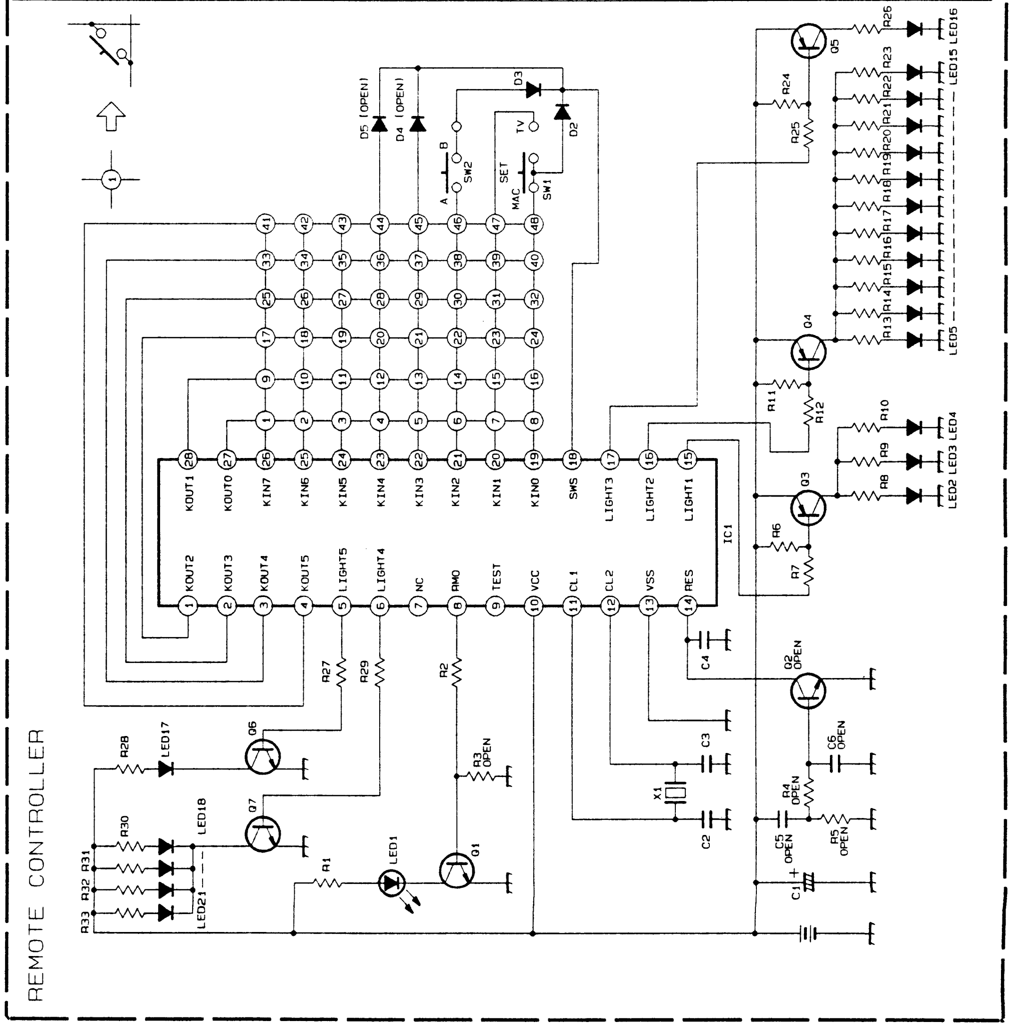
	6G	5G	4G	3G	2G	1G
P 1	—	S1	○	1a	1a	1a
P 2	—	NORM	▯▯	1b	1b	1b
P 3	1	2	▷	1f	1f	1f
P 4	L	R	◷	1g	1g	1g
P 5	B12	B12	•K	1c	1c	1c
P 6	B11	B11	M	1e	1e	1e
P 7	B10	B10	OO	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	**SP**	2a	2a	2a
P10	B7	B7	**LP**	2b	2b	2b
P11	B6	B6	**EP**	2f	2f	2f
P12	B5	B5	**SLP**	2g	2g	2g
P13	B4	B4	**REMAIN**	2c	2c	2c
P14	B3	B3	**S**	2e	2e	2e
P15	B2	B2	—	2d	2d	2d
P16	B1	B1	—	2h	col1	**REVIEW**

4.27 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

Key No.	Key Name
1	PUSH JOG >>
2	-
3	R.A.EDIT
4	SCENE FINDER
5	PROG CHECK
6	7
7	8
8	9
9	ILLUMI GUIDE
10	TV PROG+
11	CURSOR+/TV VOL+
12	PROG/MENU
13	OK
14	CANCEL
15	0
16	TIMER
17	OPERATE
18	-
19	AUDIO MONITOR
20	-/--
21	TV/VCR
22	RE_VIEW
23	CH SEARCH
24	CH STORE
25	STOP-
26	DATE+
27	DATE-
28	START-
29	TV PROG-
30	C.MEMORY
31	DISPLAY
32	SPATIALIZER
33	START+
34	PUSH JOG >>
35	PLAY
36	REW
37	FF
38	1
39	2
40	3
41	CURSOR-/TV PROG-
42	STOP+
43	STOP
44	REC
45	PAUSE
46	4
47	5
48	6
44+35	REC START
44+45	REC PAUSE

PEAC0505

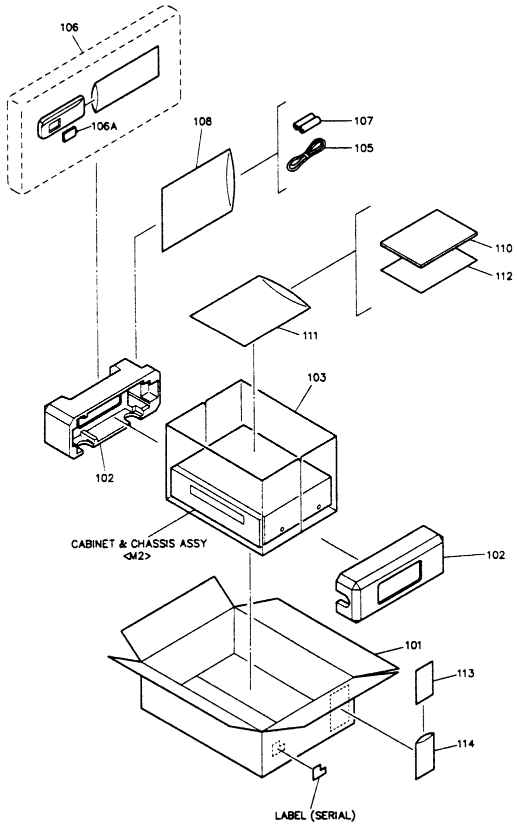

REMOTE CONTROLLER
IC1
KOUT1
KOUT0
KIN7
KIN6
KIN5
KIN4
KIN3
KIN2
KIN1
KIN0
SWS
LIGHT3
LIGHT2
LIGHT1
KOUT2
KOUT3
KOUT4
KOUT5
LIGHT5
LIGHT4
NC
RMO
TEST
VCC
CL1
CL2
VSS
RES
SW1
SW2
SET
MAC
TV
A
B
D2
D3
D4 (OPEN)
D5 (OPEN)
Q1
Q2 OPEN
Q3
Q4
Q5
Q6
Q7
X1
C1
C2
C3
C4
C5 OPEN
C6 OPEN
R1
R2
R3 OPEN
R4 OPEN
R5 OPEN
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
R32
R33
LED1
LED2
LED3
LED4
LED5
LED15
LED16
LED17
LED18
LED21

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

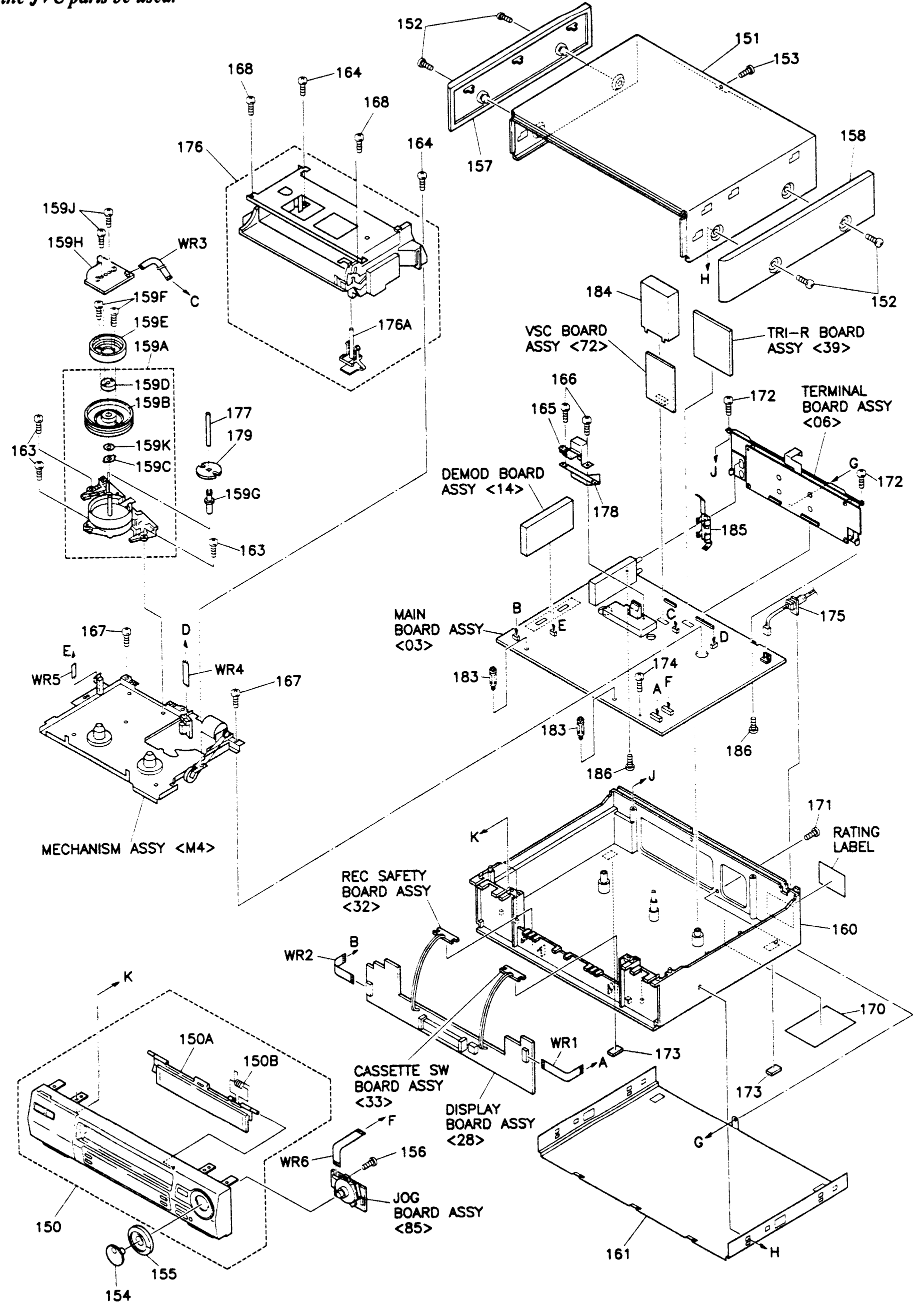


# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
*****************************			
			PACKING AND ACCESSORY ASSEMBLY <M1>
	101	LP30183-001A	PACKING CASE,DD949EH
		LP30183-005A	PACKING CASE,DD949E
	102	LP30182-001A	CUSHION ASSY
	103	PQM30021-95	POLY BAG
	105	PEAC0300-02	RF CABLE
	106	PQ21953S	REMOTE CONTROLLER
	106A	PQ46614-2	COVER(BATTERY)
	107	R6PRPA-2ST	BATTERY,X2
	108	QPC02202215P	POLY BAG
⚠	110	LPT0002-027A	INST BOOK(EN)
⚠		LPT0002-028A	INST BOOK(FR),DD949E
⚠		LPT0002-030A	INST BOOK(DU),DD949E
⚠		LPT0002-031A	INST BOOK(DA),DD949EH
⚠		LPT0002-032A	INST BOOK(FI),DD949EH
⚠		LPT0002-033A	INST BOOK(SW),DD949EH
⚠		LPT0002-034A	INST BOOK(NO),DD949EH
⚠		LPT0002-082A	INST BOOK(GE),DD949E
⚠		LPT0002-083A	INST BOOK(IT),DD949E
⚠		LPT0002-084A	INST BOOK(GR),DD949E
	111	QPC02503515P	POLY BAG
	112	PQ45146-127	SHEET(SPAIN),DD949EH
	113	BT-20135	WARRANTY CARD,DD949E
	114	PQ33909	POLY BAG,DD949E

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.


152
151
153
168
164
168
176
164
157
158
159J
159H
WR3
C
159F
159E
159A
176A
184
H
152
VSC BOARD ASSY <72>
TRI–R BOARD ASSY <39>
159D
159B
177
179
159K
159C
163
166
165
172
TERMINAL BOARD ASSY <06>
J
G
172
DEMOD BOARD ASSY <14>
178
159G
185
163
175
MAIN BOARD ASSY <03>
B
E
C
D
167
D
E
WR5
WR4
167
183
174
A
F
183
186
186
J
MECHANISM ASSY <M4>
171
RATING LABEL
K
REC SAFETY BOARD ASSY <32>
160
B
WR2
K
170
150A
150B
CASSETTE SW BOARD ASSY <33>
WR1
A
173
173
F
DISPLAY BOARD ASSY <28>
156
WR6
G
JOG BOARD ASSY <85>
150
155
154
161
H

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	********************************		
	CABINET AND CHASSIS ASSEMBLY <M2>		
	150	LP10033-001A	FRONT PANEL ASSY,DD949EH
		LP10033-003A	FRONT PANEL ASSY,DD949E
	150A	PQ21884-34	CASSETTE DOOR
	150B	PQ46448	TORSION SPRING
⚠	151	PQ11676-39	TOP COVER
	152	PQ43930	SCREW,X4 TOP COVER(SIDE)
	153	SDSF3010M	SCREW,TOP COVER(REAR)
	154	LP30121-002A	KNOB(JOG)
	155	LP30120-002A	KNOB(SHUTTLE)
	156	SDSF2608Z	SCREW,JOG BOARD
	157	LP30153-001A	SIDE PANEL(L)ASSY
	158	LP10036-001A	SIDE PANEL(R)
	159A	PDM2301M	DRUM SUB ASSEMBLY
	159B	PDM3353BH	UPPER DRUM ASSY
	159C	PDM4440A	BRUSH ASSY
	159D	PDM4345A	COLLAR ASSY
	159E	PDZ0179	ROTOR ASSY
	159F	SPSH2660Z	SCREW,X2
	159G	PDM4311A-1	ROLLER ASSY
⚠	159H	PDZ0181-2	STATOR ASSY
	159J	PDM4434	SPECIAL SCREW,X2
	159K	PDM4050-9	WASHER
⚠	160	PQ11666-3-14	BOTTOM CHASSIS
⚠	161	PQ11668-2	BOTTOM COVER
	163	PQ46808	SPECIAL SCREW,X3 DRUM
	164	SPST2606Z	SCREW,X2 CASSETTE HOUSING
	165	PQ35385-1-2	SHIELD COVER,PRE
	166	SDST2606Z	SCREW,X2 PRE
	167	SDSF4012Z	SCREW,X2 MECHANISM
	168	SDSF3010Z	SCREW,X2 CASSETTE HOUSING
⚠	170	PQ46485	SPACER(SAFETY)
	171	SDSF3010M	SCREW,TERMINAL
	172	SDSF3010Z	SCREW,X2 TERMINAL
	173	PQ43013-3	FOOT,X2
	174	SDSF3010Z	SCREW,MAIN
⚠	175	QMP4A10-170	POWER CORD
	176	PUS29724F	CASSETTE HOUSING ASSEMBLY
	176A	PQ46359-1-1	CASSETTE SWITCH PIN
	177	LP40058-001A	PIN,DRUM
	178	LP40140-001A	SHIELD PLATE
	179	PQ45160	INERTIA PLATE
	183	PEME0947-01-01	SPACER,X2
	184	PQ35567	SHIELD CASE,VSC BOARD
	185	PQ21623-1-2	EARTH PLATE(RF)
	186	SDSF3008Z	SCREW,X2 TERMINAL BOARD
	WR1	PW30802-1214	FFC WIRE,DISPLAY
	WR2	PW30802-0614	WIRE,DISPLAY
	WR3	PW30803-0414	FFC,DRUM
	WR4	PW30101-C0HH887	WIRE,A/C HEAD
	WR5	PW30101-D0HH882	WIRE,FE HEAD
	WR6	PW30802-0818	FFC WIRE,JOG

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION

5.3 ELECTRICAL PARTS LIST

* * *

MAIN BOARD ASSEMBLY <03>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PW1	PB11074A-01	MAIN BOARD ASSEMBLY,DD949EH
	PB11074B-01	MAIN BOARD ASSEMBLY,DD949E
IC1	HA118203AF	IC
IC2	MSM7470-79MS-XE	IC
IC101	HA118195NT	IC
IC401	AN3664NFB-A	IC
IC501	LA7257	IC
IC701	HD6433929TA77F	QFP IC (MCU),DD949EH
	HD6433929TA91F	QFP IC (MCU),DD949E
IC702	24LC08B/P	IC
	or X24C08-10P	IC
	or AT24C08-10PC	IC
IC703	S-80728AN-DR-X	IC
	or RH5VL28AA-XE	IC
IC704	TA7291S	IC
IC851	M38024M6-235FP	QFP IC (MCU)
IC852	TA7291S	IC
IC853	BA10358F	IC
IC1001	BA15218N	IC
	or M5223L	IC
IC1101	BU2885CS	IC
	or BU2884BS	IC
	or BU2885BS	IC
Q1	2SD1819A(QRS)	TRANSISTOR
	or 2SC4081(QRS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q4	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q9	UN511E	TRANSISTOR
	or DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
Q15	2SB1218A(QR)	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576(QR)	TRANSISTOR
Q19	2SB1218A(QR)	TRANSISTOR
	or 2SA1576(QR)	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q20	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR
Q21	2SD1819A(QRS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081(QRS)	TRANSISTOR
Q22	UN511E	TRANSISTOR
	or RN2309	TRANSISTOR
	or DTA144WU	TRANSISTOR
Q101	2SD1819A(QRS)	TRANSISTOR
	or 2SC4081(QRS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q102	UN511E	TRANSISTOR
	or DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
Q103	UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
	or DTC144WU	TRANSISTOR
Q258	2SB1218A(QR)	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576(QR)	TRANSISTOR
Q304	UN511E	TRANSISTOR
	or RN2309	TRANSISTOR
	or DTA144WU	TRANSISTOR
Q305	UN5111	TRANSISTOR
	or DTA114EU	TRANSISTOR
	or RN2302	TRANSISTOR
Q306	2SD1819A(QRS)	TRANSISTOR
	or 2SC4081(QRS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q307	2SD1819A(QRS)	TRANSISTOR
	or 2SC4081(QRS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q308	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q309	2SB1218A(QR)	TRANSISTOR
	or 2SA1576(QR)	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q310	2SB1218A(QR)	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576(QR)	TRANSISTOR
Q311	2SD1819A(QRS)	TRANSISTOR
	or 2SC4081(QRS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q312	UN5111	TRANSISTOR
	or DTA114EU	TRANSISTOR
	or RN2302	TRANSISTOR
Q313	2SC1740S(QRS)	TRANSISTOR
	or 2SC3199(YG)-TJK	TRANSISTOR
Q351	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q352	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q501	UN511E	TRANSISTOR
	or RN2309	TRANSISTOR
	or DTA144WU	TRANSISTOR
Q502	UN5215	TRANSISTOR
	or DTC114TU	TRANSISTOR
	or RN1311	TRANSISTOR
Q503	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q701	2SD1819A(QRS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081(QRS)	TRANSISTOR
Q702	UN521K	TRANSISTOR
	or DTC114WU	TRANSISTOR
Q703	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q704	LP40038-001A	TAPE SENSOR
Q705	LP40038-001A	TAPE SENSOR
Q706	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q711	2SD1819A(QRS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081(QRS)	TRANSISTOR
Q851	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q856	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q857	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q858	UN5211	TRANSISTOR
	or DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
Q859	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q901	2SK2632-CB14	FE TRANSISTOR
	or 2SK2129-LT	FE TRANSISTOR
	or 2SK2666F04	FE TRANSISTOR
Q902	2SD2144S(UV)	TRANSISTOR
Q951	2SD2061(F)	TRANSISTOR
Q952	2SD1819A(RS)	TRANSISTOR
	or 2SC4081(RS)	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q953	2SC3616(MLK)	TRANSISTOR
Q954	UN5111	TRANSISTOR
	or RN2302	TRANSISTOR
	or DTA114EU	TRANSISTOR
Q955	2SD2144S(UVW)	TRANSISTOR
Q956	2SB1256	TRANSISTOR
Q957	DTC114TU	TRANSISTOR
Q958	2SC1740S(RS)	TRANSISTOR
	or 2SC3199(GB)-TJK	TRANSISTOR
Q959	2SD1450S,T	TRANSISTOR
	or 2SD1302(ST)	TRANSISTOR
Q962	UN5211	TRANSISTOR
	or DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
Q1002	2SB810H,J	TRANSISTOR
Q1003	2SC3068	TRANSISTOR
Q1006	DTC114EU	TRANSISTOR,DD949EH
Q1008	2SB1218A(RS)	TRANSISTOR
	or 2SA1576(RS)	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q1009	UN511E	TRANSISTOR,DD949E
	or RN2309	TRANSISTOR,DD949E
	or DTA144WU	TRANSISTOR,DD949E
Q1101	UN5211	TRANSISTOR
	or RN1302	TRANSISTOR
	or DTC114EU	TRANSISTOR
Q1431	2SB1218A(QRS)	TRANSISTOR
	or 2SA1576(QRS)	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q1432	2SB1218A(QRS)	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576(QRS)	TRANSISTOR
D1	1N4148M	DIODE
	or 1SS133	DIODE
D5	1N4148M	DIODE
	or 1SS133	DIODE
D8	1N4148M	DIODE
	or 1SS133	DIODE
D10	1N4148M	DIODE
	or 1SS133	DIODE
D254	1N4148M	DIODE
	or 1SS133	DIODE
D301	1N4148M	DIODE
	or 1SS133	DIODE
D402	11ES2	DIODE
D701	RD9.1ES-T1B2	ZENER DIODE
	or MTZJ9.1(B)	ZENER DIODE
D702	11ES2	DIODE
D703	1N4148M	DIODE
	or 1SS133	DIODE
D704	11ES2	DIODE
D705	1N4148M	DIODE
	or 1SS133	DIODE
D706	1N4148M	DIODE
	or 1SS133	DIODE
D710	SIR-381SB3FM	LE DIODE
	or SIR-381SB3FX1M	LE DIODE
D711	1N4148M	DIODE
	or 1SS133	DIODE
D714	1N4148M	DIODE
	or 1SS133	DIODE
D715	1N4148M	DIODE
	or 1SS133	DIODE
D901	S1WB(A)60F4072X	BRIDGE DIODE
	or S1WB(A)60F4062X	BRIDGE DIODE
D908	1SS133	DIODE
	or 1N4148M	DIODE
D909	UZ27BSB	ZENER DIODE
	or RD27ES-T1B2	ZENER DIODE
	or MTZJ27(B)	ZENER DIODE
D910	AU01	FR DIODE
	or ERA18-04-T2	FR DIODE
	or 1SR153-400-T2	FR DIODE
	or 10ELS4	FR DIODE
D911	AU01	FR DIODE
	or ERA18-04-T2	FR DIODE
	or 1SR153-400-T2	FR DIODE
	or 10ELS4	FR DIODE
D951	AU01Z	FR DIODE
	or ERA18-02-T2	FR DIODE
	or 10ELS2	FR DIODE
	or 1SR153-200-T2	FR DIODE
D955	RD15ES-T1B1	ZENER DIODE
	or UZ15BSA	ZENER DIODE
	or MTZJ15(A)	ZENER DIODE
D956	UZ6.2BSC	ZENER DIODE
	or MTZJ6.2(C)	ZENER DIODE
	or RD6.2ES-T1B3	ZENER DIODE
D957	RD10ES-T1B3	ZENER DIODE
	or UZ10BSC	ZENER DIODE
	or MTZJ10(C)	ZENER DIODE
D958	RD30ES-T1B1	ZENER DIODE
	or MTZJ30(A)	ZENER DIODE
	or UZ30BSA	ZENER DIODE
D960	1SS133	DIODE
	or 1N4148M	DIODE

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D962	RD5.1JSB2	DIODE	
	or MA4051N(M)	ZENER DIODE	
D963	1SS133	DIODE	
	or 1N4148M	DIODE	
D964	11ES2	DIODE	
	or ERA15-02	DIODE	
D965	AU01Z	FR DIODE	
	or ERA18-02-T2	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
	or 10ELS2	FR DIODE	
D968	AU01Z	FR DIODE	
	or ERA18-02-T2	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
	or 10ELS2	FR DIODE	
D969	10ELS2	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
	or ERA18-02-T2	FR DIODE	
D972	FML-12S	FR DIODE	
	or MA644	FR DIODE	
	or YG901C2	FR DIODE	
	or FCF06A20	FR DIODE	
D973	FMB-24	BARRIER DIODE	
	or MA7D49	SB DIODE	
	or YG801C04	SB DIODE	
	or F5KQ40B	BARRIER DIODE	
D1001	MTZ10B	ZENER DIODE	
D1002	MTZJ33(C)	ZENER DIODE	
	or UZ33BSC	DIODE	
R1	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R2	QRSA08J-751YN	RESISTOR	750Ω,1/10W
R3	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R4	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R5	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R6	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R7	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R8	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R9	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R10	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R11	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R12	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R13	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R14	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R15	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R16	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R17	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R20	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R21	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R23	QRSA08J-823YN	RESISTOR	82kΩ,1/10W
R27	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R31	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R32	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R34	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R35	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R36	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R43	QRSA08J-225YN	RESISTOR	2.2MΩ,1/10W
R45	QRSA08J-395YN	RESISTOR	3.9MΩ,1/10W
R46	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R47	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R50	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R52	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R53	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R54	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R57	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R58	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R59	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R65	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R66	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R67	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R68	QRD161J-0R0	RESISTOR	0Ω,1/6W
R69	QRD161J-0R0	RESISTOR	0Ω,1/6W
R101	QRSA08J-912YN	RESISTOR	9.1kΩ,1/10W
R102	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R103	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R104	NRVA62D-152N	RESISTOR	1.5kΩ,1/16W
R105	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R106	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R107	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R221	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R222	QRD161J-103	RESISTOR	10kΩ,1/6W
R280	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R281	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R284	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R301	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R302	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R303	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R305	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R306	QRSA08J-181YN	RESISTOR	180Ω,1/10W
R307	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R308	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R310	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R312	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R313	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R314	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R315	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R316	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R317	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R318	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R320	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R321	QRSA08J-0R0Y	RESISTOR,DD949EH	0Ω,1/10W
R331	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R332	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R333	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R334	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R335	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
R336	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R337	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R338	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R341	QRD161J-3R3	RESISTOR	3.3Ω,1/6W
R342	QRD161J-273	RESISTOR	27kΩ,1/6W
R343	QRD161J-151	RESISTOR	150Ω,1/6W
R351	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R352	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R353	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R355	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R401	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R402	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R403	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R404	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R405	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R406	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R407	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R409	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R410	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R411	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R412	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R413	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R416	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R417	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R418	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R419	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R420	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R422	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R423	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R424	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R425	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R426	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R427	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R428	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R429	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R431	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R432	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R436	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R437	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R438	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R501	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R502	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R503	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R506	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R507	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R509	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R701	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R702	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R703	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R704	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R705	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R706	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R707	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R708	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R709	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R710	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R711	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R712	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R713	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R714	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R715	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R716	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R717	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R718	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R719	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R720	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R721	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R722	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R723	QRD161J-102	RESISTOR	1kΩ,1/6W
R725	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R726	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R727	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R728	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R729	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R730	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R731	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R732	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R733	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R734	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R735	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R736	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R738	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R739	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R740	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R741	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R742	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R743	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R744	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R745	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R746	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R747	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R748	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R749	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R750	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R751	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R753	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R754	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R755	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R756	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R757	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R758	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R760	QRD161J-102	RESISTOR	1kΩ,1/6W
R761	QRD161J-102	RESISTOR	1kΩ,1/6W
R762	QRD161J-221	RESISTOR	220Ω,1/6W
R763	QRD161J-221	RESISTOR	220Ω,1/6W
R764	QRD161J-102	RESISTOR	1kΩ,1/6W
R765	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R766	QRSA08J-474YN	RESISTOR	470kΩ,1/10W
R767	QRD161J-334	RESISTOR	330kΩ,1/6W
R769	QRD161J-103	RESISTOR	10kΩ,1/6W
R770	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R771	QRD161J-104	RESISTOR	100kΩ,1/6W
R772	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R773	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R774	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R775	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R776	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R777	QRD161J-102	RESISTOR	1kΩ,1/6W
R778	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R779	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R780	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R781	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R782	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R784	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R785	QRD161J-181	RESISTOR	180Ω,1/6W
R786	QRD161J-750	RESISTOR	75Ω,1/6W
R787	QRSA08J-181YN	RESISTOR	180Ω,1/10W
R788	QRD161J-822	RESISTOR	8.2kΩ,1/6W
R789	QRD161J-822	RESISTOR	8.2kΩ,1/6W
R790	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R793	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R794	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R800	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R801	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R805	QRD161J-103	RESISTOR	10kΩ,1/6W
R806	QRD161J-103	RESISTOR	10kΩ,1/6W
R809	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R810	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R811	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R812	QRSA08J-273YN	RESISTOR	27kΩ,1/10W

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R814	QRD161J-102	RESISTOR	1kΩ,1/6W
	R815	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R816	QRD161J-393	RESISTOR	39kΩ,1/6W
	R817	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
	R818	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R819	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R820	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R821	QRD161J-102	RESISTOR	1kΩ,1/6W
	R834	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R835	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R840	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R841	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R842	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R843	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R845	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R851	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R852	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R853	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R854	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R855	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R856	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R857	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R858	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R859	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R860	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R861	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R862	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R863	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R864	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R865	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R868	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R869	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R870	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R871	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R872	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R874	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R876	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R877	QRD161J-102	RESISTOR	1kΩ,1/6W
	R878	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R879	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R880	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R881	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R882	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R883	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
	R884	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
	R885	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R886	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R887	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R888	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
	R889	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
	R890	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R891	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R892	QRD161J-103	RESISTOR	10kΩ,1/6W
	R895	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R896	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R901	QRD161J-224	RESISTOR	220kΩ,1/6W
	R902	QRD161J-224	RESISTOR	220kΩ,1/6W
	R903	QRD161J-683	RESISTOR	68kΩ,1/6W
	R904	QRD121J-331S	RESISTOR	330Ω,1/2W
	R905	QRX014J-R39Z	MF RESISTOR	0.39Ω,1W
	R906	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R908	QRG032J-683	OMF RESISTOR	68kΩ,3W
	R909	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
	R910	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R911	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
	R951	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R952	QRV144F-2211AY	CMF RESISTOR	2.21kΩ,1/4W
	R953	QRV144F-3481AY	CMF RESISTOR	3.48kΩ,1/4W
	R954	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R955	QRG02DJ-222X	OMF RESISTOR	2.2kΩ,2W
⚠	R957	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4W
	R958	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R959	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R960	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R961	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R963	QRD161J-511	RESISTOR	510Ω,1/6W
	R964	QRD161J-471	RESISTOR	470Ω,1/6W
	R965	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R966	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R967	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R968	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R970	QRG01DJ-200X	OMF RESISTOR	20Ω,1W
	R971	QRSA08J-331YN	RESISTOR	330Ω.1/10W
	R972	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R975	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R976	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R977	QRG02DJ-182X	OMF RESISTOR	1.8kΩ,2W
	R1001	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
	R1002	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R1003	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R1004	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1011	QRD161J-562	RESISTOR,DD949EH	5.6kΩ,1/6W
	R1012	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1016	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R1026	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1030	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1038	QRSA08J-152YN	RESISTOR,DD949EH	1.5kΩ,1/10W
	R1048	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R1049	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R1102	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R1103	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1105	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R1106	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R1107	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R1108	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R1109	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R1112	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R1113	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1114	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1115	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1431	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R1432	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R1433	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R1434	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R1435	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R1436	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
	R1437	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R1438	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	C1	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C2	QCTA1CH-680	CAPACITOR	68pF,16V
	C3	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C4	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	C5	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C6	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C7	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C9	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C10	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C11	QERF1HM-335	E CAPACITOR	3.3µF,50V
	C12	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
	C13	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C14	QCTA1CH-221	CAPACITOR	220pF,16V
	C15	QCTA1CH-680	CAPACITOR	68pF,16V
	C16	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
	C17	QEKJ1HM-474	E CAPACITOR	0.47µF,50V
	C18	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C19	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C20	QCYA1EK-333	CAPACITOR	0.033µF,25V
	C22	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C23	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C24	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C25	QEKJ1HM-335	E CAPACITOR	3.3µF,50V
	C28	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C29	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C30	QEKJ1HM-104	E CAPACITOR	0.1µF,50V
	C31	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C32	QEKJ1HM-335	E CAPACITOR	3.3µF,50V
	C33	QCTA1CH-180	CAPACITOR	18pF,16V
	C34	QCYA1EK-473	CAPACITOR	0.047µF,25V
	C35	QCYA1CK-224	CAPACITOR	0.22µF,16V
	C36	QCTA1CH-390	CAPACITOR	39pF,16V
	C37	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C38	QCTA1CH-151	CAPACITOR	150pF,16V
	C39	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	C41	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C42	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C43	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C44	QEKJ1CM-476	E CAPACITOR	47µF,16V
	C45	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C47	QCTA1CH-100	CAPACITOR	10pF,16V
	C48	QCYA1HK-183	CAPACITOR	0.018µF,50V
	C52	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C53	QCTA1CH-101	CAPACITOR	100pF,16V
	C54	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C55	QEPF1EM-475	NP E CAPACITOR	4.7µF,25V
	C56	QCTA1CH-9R0	CAPACITOR	9pF,16V
	C58	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C60	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	C61	QCTA1CH-5R0	CAPACITOR	5pF,16V
	C63	QCYA1HK-221	CAPACITOR	220pF,50V
	C64	QCTA1CH-101	CAPACITOR	100pF,16V
	C66	QCTA1CH-101	CAPACITOR	100pF,16V
	C75	QCTA1CH-330	CAPACITOR	33pF,16V
	C101	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C102	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C103	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C104	QEKJ1CM-476	E CAPACITOR	47µF,16V
	C105	QCYA1EK-473	CAPACITOR	0.047µF,25V
	C106	QCYA1HK-272	CAPACITOR	0.0027µF,50V
	C107	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C110	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C111	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C112	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C113	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C114	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C115	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C116	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C117	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C118	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C119	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C120	QCBB1HK-331	CAPACITOR	330pF,50V
	C121	QCYA1EK-104	CAPACITOR	0.1µF,25V
	C123	QCTA1CH-150	CAPACITOR	15pF,16V
	C124	QCTA1CH-150	CAPACITOR	15pF,16V
	C125	QCTA1CH-560	CAPACITOR	56pF,16V
	C126	QCTA1CH-560	CAPACITOR	56pF,16V
	C127	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C271	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	C301	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C302	QFLC1HJ-183	F CAPACITOR	0.018µF,50V
	C303	QFLC1HJ-223	F CAPACITOR	0.022µF,50V
	C306	QCYA1HK-222	CAPACITOR	0.0022µF,50V
	C307	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C308	QEKJ0JM-226	E CAPACITOR	22µF,6.3V
	C309	QCYA1HK-153	CAPACITOR	0.015µF,50V
	C310	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C311	QCYA1EK-333	CAPACITOR,DD949EH	0.033µF,25V
	C312	QCYA1EK-333	CAPACITOR	0.033µF,25V
	C313	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C314	QCYA1HK-182	CAPACITOR	0.0018µF,50V
	C315	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C317	QEKJ1CM-107	E CAPACITOR	100µF,16V
	C318	QCYA1HK-331	CAPACITOR	330pF,50V
	C319	QCTA1CH-101	CAPACITOR	100pF,16V
	C331	QCYA1EK-103	CAPACITOR	0.01µF,25V
	C332	QCYA1HK-332	CAPACITOR	0.0033µF,50V
	C333	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C334	QCYA1HK-331	CAPACITOR	330pF,50V
	C335	QFLC1HJ-333	F CAPACITOR	0.033µF,50V
	C341	QCVB1CM-103	CAPACITOR	0.01µF,16V
	C342	QCXB1CM-332	CAPACITOR	0.0033µF,16V
	C343	QETC1HM-106	E CAPACITOR	10µF,50V
	C344	QFLC1HJ-333	F CAPACITOR	0.033µF,50V
	C351	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C352	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C402	QEKJ0JM-226	E CAPACITOR	22µF,6.3V
	C403	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C404	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C405	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C406	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C407	QCYA1EK-473	CAPACITOR	0.047µF,25V
	C408	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C409	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
	C410	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C411	QCYA1HK-153	CAPACITOR	0.015µF,50V
	C412	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C413	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C414	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C415	QEKJ1HM-224	E CAPACITOR	0.22µF,50V
	C416	QCYA1HK-103	CAPACITOR	0.01µF,50V
	C417	QCYA1HK-153	CAPACITOR	0.015µF,50V
	C418	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C419	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
	C420	QCYA1EK-473	CAPACITOR	0.047µF,25V
	C421	QEKJ0JM-476	E CAPACITOR	47µF,6.3V

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C422	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C423	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C424	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C425	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C426	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C427	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C428	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
	C429	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C430	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
	C431	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
	C432	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
	C433	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
	C436	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C501	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C502	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C503	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C504	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C505	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
	C506	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C507	QCYA1EK-563	CAPACITOR	0.056μF,25V
	C508	QCYA1HK-221	CAPACITOR	220pF,50V
	C509	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C510	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C511	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C512	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C513	QCTA1CH-331	CAPACITOR	330pF,16V
	C701	QAT3120-450Z	TRIM CAPACITOR,TIMER CLOCK	
	C702	QCTA1CH-180	CAPACITOR	18pF,16V
	C703	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C704	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C709	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C710	QCTA1CH-101	CAPACITOR	100pF,16V
	C711	QCTA1CH-101	CAPACITOR	100pF,16V
	C712	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C715	QCVB1CM-103	CAPACITOR	0.01μF,16V
	C717	QEKJ1CM-336	E CAPACITOR	33μF,16V
	C719	QEZ0244-229	EDL CAPACITOR	0.0022F
	C730	QETC1HM-106	E CAPACITOR	10μF,50V
	C731	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C736	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C851	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C852	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
	C856	QCBB1HK-102	CAPACITOR	0.001μF,50V
	C861	QCYA1EK-333	CAPACITOR	0.033μF,25V
	C862	QCYA1EK-333	CAPACITOR	0.033μF,25V
	C863	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
	C865	QCFA1EZ-104	CAPACITOR	0.1μF,25V
⚠	C901	QFZ9067-683	F CAPACITOR	0.068μF
⚠	C903	QFZ9067-333	F CAPACITOR	0.033μF
	C906	QETC1HM-105	E CAPACITOR	1μF,50V
	C908	QFV11HJ-104A	F CAPACITOR	0.1μF,50V
	C910	PECA0738-686	E CAPACITOR	68μF
⚠	C911	QCZ9079-222	CAPACITOR	0.0022μF
	C915	QFLC1HJ-183	F CAPACITOR	0.018μF,50V
	C916	QCBB1HJ-271	CAPACITOR	270pF,50V
	C917	QCZ0212-472	CAPACITOR	0.0047μF,1kV
	C951	QEMU0JM-227	E CAPACITOR	220μF,6.3V
	C953	QEMT1AM-687	E CAPACITOR	680μF,10V
	C954	QEMT1CM-827	E CAPACITOR	820μF,16V
	C955	QEMU1EM-187	E CAPACITOR	180μF,25V
	C959	QETC1JM-106	E CAPACITOR	10μF,63V
	C960	QETC1HM-226	E CAPACITOR	22μF,50V
	C961	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C962	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C963	QETC1AM-107	E CAPACITOR	100μF,10V
	C964	QETC1CM-226	E CAPACITOR	22μF,16V
	C965	QETC1AM-107	E CAPACITOR	100μF,10V
	C966	QETC1HM-106	E CAPACITOR	10μF,50V
	C967	QEKJ1CM-107	E CAPACITOR	100μF,16V
	C968	QETC1CM-476	E CAPACITOR	47μF,16V
	C969	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
	C971	QETC1AM-227	E CAPACITOR	220μF,10V
	C972	QETC1CM-227	E CAPACITOR	220μF,16V
	C1001	QETC1CM-336	E CAPACITOR	33μF,16V
	C1002	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C1003	QETC1HM-106	E CAPACITOR	10μF,50V
	C1004	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C1007	QCYA1EK-473	CAPACITOR,DD949EH	0.047μF,25V
	C1008	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C1033	QCTA1CH-101	CAPACITOR	100pF,16V
	C1034	QCTA1CH-101	CAPACITOR	100pF,16V
	C1054	QCFA1EZ-473	CAPACITOR	0.047μF,25V
	C1055	QCFA1EZ-473	CAPACITOR	0.047μF,25V
	C1101	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C1103	QCYA1EK-563	CAPACITOR	0.056μF,25V
	C1104	QCTA1CH-101	CAPACITOR	100pF,16V
	C1105	QCYA1EK-223	CAPACITOR	0.022μF,25V
	C1106	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C1107	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C1110	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C1111	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C1113	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C1114	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C1115	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
	C1116	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C1432	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C1434	QEKJ1CM-226	E CAPACITOR	22μF,16V
	C1435	QEKJ1CM-226	E CAPACITOR	22μF,16V
	C1436	QCTA1CH-100	CAPACITOR	10pF,16V
	L1	QQL29BJ-100Z	COIL	10μH
	L2	PELN1203	COIL	
	L3	PU59152-5R6J	COIL	5.6μH
	L5	PU59152-820J	COIL	82μH
	L6	QQL29BJ-100Z	COIL	10μH
	L7	QQL29BJ-331Z	COIL	330μH
	L8	QQL29BJ-221Z	COIL	220μH
	L9	PU59152-680J	COIL	68μH
	L10	QQL29BJ-221Z	COIL	220μH
	L11	QQL29BJ-331Z	COIL	330μH
	L15	QQL29BK-1R0Z	COIL	1μH
	L17	PU59152-121J	COIL	120μH
	L101	QQL29BJ-100Z	COIL	10μH
	L301	PU58308-123J	COIL	12mH
	L501	QQL29BJ-100Z	COIL	10μH
	L502	QQL29BJ-101Z	COIL	100μH
	L703	QQL29BJ-100Z	COIL	100μH
	L951	PELN0687	COIL	
	L953	PELN0687	COIL	
	L954	QQL29BJ-101Z	COIL	100μH
	L1003	QQL29BK-1R0Z	COIL	1μH
⚠	LF901	PELN1204-01-01	LINE FILTER	
⚠	LF902	QQR0608-001	LINE FILTER	
	CF701	PEVB0594-Z	RESONATOR	
⚠	CF851	PU60440-2	RESONATOR	
	X1	PEVB0679	CRYSTAL RESONATOR	
	X701	PEVB0422	CRYSTAL RESONATOR	
	K901	PELN0662-Z	FERRATE BEADS	
⚠	PC901	PC123FY2	PH COUPLER,DD949E	
⚠		PC123F2	PH COUPLER,DD949EH	
	PS701	SG-246	IC(PHOTO SENSOR	
	PS702	SG-246	IC(PHOTO SENSOR	
	T301	PELN0860	OSC TRANSFORMER	
	T302	PELN0861	OSC TRANSFORMER	
⚠	T901	QQS0011-001	SW TRANSF	
⚠	TU1001	QAU0012-001	TUNER	
⚠	UN1001	QAU0028-001	IF UNIT	
⚠	HS1	PQ45788-1-2	HEAT SINK	
⚠	FC901	PEMC0965-Z	FUSE CLIP	
⚠	FC902	PEMC0965-Z	FUSE CLIP	
	OT1	SDST3006Z	SCREW,HEAT SINK	
	SD1	PQ35384	SHIELD CASE	
	SD2	PQ46515	SHIELD PLATE	
	CN1	PEMC1163-009	CONNECTOR,(1-9)UPPER DRUM	
	CN301	PU60727-7	CONNECTOR,(1-7)A/C HEAD	
	CN302	PU60727-2	CONNECTOR,(1-2)FE HEAD	
	CN701	PEMC1077	CONNECTOR,(1-8)CAP MDA	
	CN702	PU61434-1-1	CONNECTOR,(1-5)ROTARY ENCORDE	
	CN703	PU60727-2	CONNECTOR,(1-2)LOADING MOTOR	
	CN802	PEMC1101-012	FFC CONNECTOR,(1-12)DISPLAY	
	CN851	PU60727-6	CONNECTOR,(1-6)DD SENSOR	
	CN854	PEMC1101-008	FFC CONNECTOR,(1-8)JOG/SHUTTL	
⚠	CN901	PU60250-2	CONNECTOR,(1-2)AC IN	
	CN1102	PEMC1101-004	FFC CONNECTOR,(1-4)DRUM MOTOR	
	CN1404	PEMC1168-015	CONNECTOR,(1-15)TERMINAL	
	CN1405	PEMC1168-015	CONNECTOR,(1-15)TERMINAL	
	CN1406	PEMC1168-015	CONNECTOR,(1-15)TERMINAL	
	CN1407	PEMC1101-006	FFC CONNECTOR,(1-6)DISPLAY	
⚠	CP701	ICP-N25	CIRCUIT PROTECTOR	
⚠	CP851	ICP-N20	CIRCUIT PROTECTOR	
⚠	CP901	ICP-N25	CIRCUIT PROTECTOR	
⚠	CP902	ICP-N25	CIRCUIT PROTECTOR	
⚠	CP1101	ICP-N15	CIRCUIT PROTECTOR	
⚠	F901	QMF51E2-1R25J1	FUSE	T1.2A

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TERMINAL BOARD ASSEMBLY <06>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW1	PB11073A	TERMINAL BOARD ASSEMBLY	
	IC201	BH7634AS	IC	
	IC621	BA3129F	IC	
	IC651	AN7395S	IC	
	IC1301	LC74795-9601	IC	
	Q207	2SB1218A(QR)	TRANSISTOR	
		or 2PA1576/R/-X	TRANSISTOR	
		or 2SA1576(QR)	TRANSISTOR	
	Q621	UN521E	TRANSISTOR	
		or RN1309	TRANSISTOR	
		or DTC144WU	TRANSISTOR	
⚠	Q651	2SD1819A(QRS)	TRANSISTOR	
⚠		or 2PC4081/R/-X	TRANSISTOR	
⚠		or 2SC4081(QRS)	TRANSISTOR	
	Q1351	2SB1218A(QR)	TRANSISTOR	
		or 2PA1576/R/-X	TRANSISTOR	
		or 2SA1576(QR)	TRANSISTOR	
	Q1352	2SD1819A(QRS)	TRANSISTOR	
		or 2SC4081(QRS)	TRANSISTOR	
		or 2PC4081/R/-X	TRANSISTOR	
	Q1353	2SB1218A(QR)	TRANSISTOR	
		or 2PA1576/R/-X	TRANSISTOR	
		or 2SA1576(QR)	TRANSISTOR	
	Q1354	2SD1819A(QRS)	TRANSISTOR	
		or 2SC4081(QRS)	TRANSISTOR	
		or 2PC4081/R/-X	TRANSISTOR	
	Q1403	2SB1218A(QR)	TRANSISTOR	
		or 2PA1576/R/-X	TRANSISTOR	
		or 2SA1576(QR)	TRANSISTOR	
	D651	MTZ10B	ZENER DIODE	
		or RD10ES-T1B2	ZENER DIODE	
	D1301	1SS133	DIODE	
		or 1N4148M	DIODE	
	R207	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R210	QRSA08J-511YN	RESISTOR	510Ω,1/10W
	R211	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R215	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	R216	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	R217	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	R218	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	R601	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R605	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R615	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R616	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R621	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R622	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
	R623	QRSA08J-333YN	RESISTOR	33kΩ,1/10
	R624	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R625	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R626	QRSA08J-473YN	RESISTOR	47kΩ,1/10
	R627	QRSA08J-221YN	RESISTOR	220Ω,1/1
	R628	QRSA08J-221YN	RESISTOR	220Ω,1/1
	R629	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R630	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R651	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R652	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R653	QRSA08J-472YN	RESISTOR	4.7kΩ,1/1
	R654	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R655	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R656	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R657	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R658	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R659	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1301	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1302	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1304	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1307	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1308	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1309	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1310	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1351	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R1352	QRSA08J-272YN	RESISTOR	2.7kΩ,1/10W
	R1353	QRSA08J-622YN	RESISTOR	6.2kΩ,1/10W
	R1354	QRSA08J-103YN	RESISTOR	10kΩ,1/10W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R1355	QRSA08J-272YN	RESISTOR	2.7kΩ,1/10W
R1356	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R1357	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R1359	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1404	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
C205	QETA0JM-477	E CAPACITOR	470µF,6.3V
C206	QETA0JM-477	E CAPACITOR	470µF,6.3V
C207	QCYA1EK-223	CAPACITOR	0.022µF,25V
C208	QCYA1EK-223	CAPACITOR	0.022µF,25V
C209	QCYA1EK-223	CAPACITOR	0.022µF,25V
C210	QCYA1EK-223	CAPACITOR	0.022µF,25V
C211	QCYA1HK-103	CAPACITOR	0.01µF,50V
C212	QEKJ1CM-476	E CAPACITOR	47µF,16V
C221	QEKJ1CM-106	E CAPACITOR	10µF,16V
C621	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
C622	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
C623	QEKJ1CM-106	E CAPACITOR	10µF,16V
C624	QEKJ1CM-106	E CAPACITOR	10µF,16V
C651	QEKJ0JM-107	E CAPACITOR	100µF,6.3V
C652	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
C653	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
C654	QCYA1HK-563	CAPACITOR	0.056µF,50V
C655	QCYA1HK-393	CAPACITOR	0.039µF,50V
C656	QEKJ1CM-106	E CAPACITOR	10µF,16V
C657	QEKJ1CM-106	E CAPACITOR	10µF,16V
C659	QCYA1HK-103	CAPACITOR	0.01µF,50V
C661	QCYA1HK-273	CAPACITOR	0.027µF,50V
C662	QCYA1HK-103	CAPACITOR	0.01µF,50V
C663	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
C664	QEKJ1CM-476	E CAPACITOR	47µF,16V
C665	QEKJ1CM-106	E CAPACITOR	10µF,16V
C666	QEKJ1CM-106	E CAPACITOR	10µF,16V
C1301	QEKJ1HM-105	E CAPACITOR	1µF,50V
C1303	QEKJ1HM-105	E CAPACITOR	1µF,50V
C1304	QCTA1CH-560	CAPACITOR	56pF,16V
C1305	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
C1307	QCTA1CH-100	CAPACITOR	10pF,16V
C1317	QCTA1CH-470	CAPACITOR	47pF,16V
C1318	QCTA1CH-470	CAPACITOR	47pF,16V
C1319	QCYA1CK-224	CAPACITOR	0.22µF,16V
C1321	QCYA1CK-224	CAPACITOR	0.22µF,16V
C1351	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
C1352	QCYA1HK-563	CAPACITOR	0.056µF,50V
C1354	QCYA1HK-102	CAPACITOR	0.001µF,50V
C1355	QCYA1CK-224	CAPACITOR	0.22µF,16V
C1356	QCTA1CH-101	CAPACITOR	100pF,16V
C1357	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
C1401	QCYA1HK-681	CAPACITOR	680pF,50V
C1402	QCYA1HK-681	CAPACITOR	680pF,50V
C1403	QCYA1HK-102	CAPACITOR	0.001µF,50V
C1407	QCYA1HK-681	CAPACITOR	680pF,50V
C1408	QCYA1HK-681	CAPACITOR	680pF,50V
C1409	QCYA1HK-102	CAPACITOR	0.001µF,50V
C1413	QCYA1HK-681	CAPACITOR	680pF,50V
C1414	QCYA1HK-681	CAPACITOR	680pF,50V
C1419	QCYA1HK-102	CAPACITOR	0.001µF,50V
C1420	QCYA1HK-102	CAPACITOR	0.001µF,50V
L1301	QQL29BK-1R0Z	COIL	1µH
L1303	QQL29BJ-220Z	COIL	22µH
L1305	QQL29BJ-330Z	COIL	33µH
L1351	QQL29BJ-150Z	COIL	15µH
L1352	QQL29BJ-100Z	COIL	10µH
L1401	PU59152-4R7J	COIL	4.7µH
L1402	PU59152-4R7J	COIL	4.7µH
L1403	PU59152-R22J	COIL	0.22µH
L1405	PU59152-4R7J	COIL	4.7µH
L1406	PU59152-4R7J	COIL	4.7µH
L1407	PU59152-4R7J	COIL	4.7µH
L1408	PU59152-1R0J	COIL	1µH
L1410	PU59152-4R7J	COIL	4.7µH
L1411	QQL29BJ-4R7Z	COIL	4.7µH
L1412	QQL29BJ-4R7Z	COIL	4.7µH
L1413	PU59152-4R7J	COIL	4.7µH
L1414	PU59152-4R7J	COIL	4.7µH
L1415	PU59152-R22J	COIL	0.22µH
TB1	LP30165-001A	TERMINAL BOARD ASSEMBLY	
W201	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W202	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W203	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W204	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W205	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W206	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W207	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W208	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W209	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W210	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W211	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W212	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W213	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W214	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W215	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W216	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W217	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W218	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W219	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W220	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W221	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W222	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W223	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
J1401	PEMC1019	RGB21PIN SOCKET,AV1	
J1402	PEMC1019	RGB21PIN SOCKET,AV2/DEC	
J1403	PU60659	MINI JACK,PAUSE/RAE	
J1404	PEMC1190	MINI JACK,JLIP	
J1405	PEMC1009-03	PIN JACK,A OUT(L)	
J1406	PEMC1009-02	PIN JACK,A OUT(R)	
EH1	PQ21987	EARTH PLATE,TERMINAL ASSEMBLY	
OT1	SDSF3008Z	SCREW,X8 TERMINAL ASSEMBLY	
CN1401	PEMC1167-115	CONNECTOR,(1-15)MAIN	
CN1402	PEMC1167-115	CONNECTOR,(1-15)MAIN	
CN1403	PEMC1167-115	CONNECTOR,(1-15)MAIN	

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AUDIO/CONTROL HEAD BOARD ASSY <12>

PW1	PB10916A-04	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

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DEMOD BOARD ASSEMBLY <14>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	PB11032A	DEMOD BOARD ASSEMBLY,DD949EH	
	PB11032B	DEMOD BOARD ASSEMBLY,DD949E	
IC1501	UPC1391H	IC	
IC1502	TDA9840	IC	
IC1503	SAA7283ZP	IC,DD949EH	
Q1501	2SC3354	TRANSISTOR,DD949EH	
D1502	1SV214	DIODE,DD949EH	
D1503	1N4148M	DIODE,DD949EH	
	or 1SS133	DIODE,DD949EH	
R1501	QRSA08J-822YN	RESISTOR,DD949EH	8.2kΩ,1/10W
R1502	QRSA08J-332YN	RESISTOR,DD949EH	3.3kΩ,1/10W
R1503	QRSA08J-681YN	RESISTOR,DD949EH	680Ω,1/10W
R1504	QRSA08J-271YN	RESISTOR,DD949EH	270Ω,1/10W
R1505	QRSA08J-680YN	RESISTOR,DD949EH	68Ω,1/10W
R1506	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R1514	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R1515	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R1516	QRSA08J-0R0Y	RESISTOR,DD949E	0Ω,1/10W
	QRSA08J-272YN	RESISTOR,DD949EH	2.7kΩ,1/10W
R1517	QRSA08J-182YN	RESISTOR,DD949EH	1.8kΩ,1/10W
R1518	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R1519	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R1521	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1523	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1524	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1527	QRSA08J-333YN	RESISTOR,DD949EH	33kΩ,1/10W
R1528	QRSA08J-182YN	RESISTOR,DD949EH	1.8kΩ,1/10W
R1529	QRSA08J-272YN	RESISTOR,DD949EH	2.7kΩ,1/10W
	QRSA08J-472YN	RESISTOR,DD949E	4.7kΩ,1/10W
R1530	QRSA08J-102YN	RESISTOR,DD949E	1kΩ,1/10W
	QRSA08J-222YN	RESISTOR,DD949EH	2.2kΩ,1/10W
R1531	QRSA08J-272YN	RESISTOR,DD949EH	2.7kΩ,1/10W
	QRSA08J-472YN	RESISTOR,DD949E	4.7kΩ,1/10W
R1532	QRSA08J-102YN	RESISTOR,DD949E	1kΩ,1/10W
	QRSA08J-222YN	RESISTOR,DD949EH	2.2kΩ,1/10W
R1533	QRSA08J-102YN	RESISTOR,DD949EH	1kΩ,1/10W
R1534	QRSA08J-101YN	RESISTOR,DD949EH	100Ω,1/10W
R1535	QRSA08J-822YN	RESISTOR,DD949EH	8.2kΩ,1/10W
R1536	QRSA08J-223YN	RESISTOR,DD949EH	22kΩ,1/10W
R1537	QRSA08J-105YN	RESISTOR,DD949EH	1MΩ,1/10W
R1538	QRSA08J-684YN	RESISTOR,DD949EH	680kΩ,1/10W
R1540	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1541	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1542	QRSA08J-470YN	RESISTOR,DD949EH	47Ω,1/10W
R1543	QRD161J-220	RESISTOR,DD949EH	22Ω,1/6W
VR1501	QVZ3521-103	V RESISTOR,SEPARATION	
C1501	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1502	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1503	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1504	QCYA1HK-103	CAPACITOR	0.01µF,50V
C1505	QEKJ1CM-106	E CAPACITOR	10µF,16V
C1506	QCYA1HK-103	CAPACITOR	0.01µF,50V
C1507	QEKJ1HM-104	E CAPACITOR	0.1µF,50V
C1508	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1509	QCYA1HK-103	CAPACITOR	0.01µF,50V
C1510	QCTA1CH-220	CAPACITOR	22pF,16V
C1511	QCYA1HK-103	CAPACITOR	0.01µF,50V
C1512	QCYA1EK-473	CAPACITOR	0.047µF,25V
C1513	QCYA1HK-103	CAPACITOR	0.01µF,50V
C1514	QCYA1HK-103	CAPACITOR	0.01µF,50V
C1515	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
C1516	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
C1518	QCTA1CH-330	CAPACITOR,DD949E	33pF,16V
C1519	QCTA1CH-330	CAPACITOR,DD949E	33pF,16V
C1520	QCYA1HK-392	CAPACITOR,DD949EH	0.0039µF,50V
C1521	QCYA1HK-392	CAPACITOR,DD949EH	0.0039µF,50V
C1523	QCTA1CH-181	CAPACITOR	180pF,16V
C1524	QEKJ1CM-226	E CAPACITOR,DD949EH	22µF,16V
C1525	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1526	QEKJ1CM-106	E CAPACITOR,DD949EH	10µF,16V
C1527	QCYA1EK-473	CAPACITOR,DD949EH	0.047µF,25V
C1528	QEKJ1HM-224	E CAPACITOR,DD949EH	0.22µF,50V
C1529	QEKJ1CM-106	E CAPACITOR	10µF,16V
C1530	QEKJ1HM-104	E CAPACITOR,DD949EH	0.1µF,50V
C1531	QEKJ1CM-106	E CAPACITOR	10µF,16V
C1532	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1533	QEKJ1HM-224	E CAPACITOR,DD949EH	0.22µF,50V
C1534	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1535	QEKJ1CM-336	E CAPACITOR,DD949EH	33µF,16V
C1536	QEKJ1CM-336	E CAPACITOR	33µF,16V
C1537	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1538	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1539	QEKJ1CM-106	E CAPACITOR,DD949EH	10µF,16V
C1540	QCTA1CH-100	CAPACITOR,DD949EH	10pF,16V
C1541	QEKJ1CM-106	E CAPACITOR,DD949EH	10µF,16V
C1542	QCTA1CH-221	CAPACITOR,DD949EH	220pF,16V
C1543	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1544	QEKJ1CM-106	E CAPACITOR,DD949EH	10µF,16V
C1545	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1546	QEKJ1HM-105	E CAPACITOR,DD949EH	1µF,50V
C1547	QEKJ1CM-336	E CAPACITOR,DD949EH	33µF,16V
C1548	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1549	QCYA1EK-223	CAPACITOR,DD949EH	0.022µF,25V
C1550	QEKJ1HM-334	E CAPACITOR,DD949EH	0.33µF,50V
C1551	QCTA1CH-101	CAPACITOR,DD949EH	100pF,16V
C1552	QCTA1CH-101	CAPACITOR,DD949EH	100pF,16V
C1553	QCYA1HK-103	CAPACITOR,DD949EH	0.01µF,50V
C1554	QCYA1EK-473	CAPACITOR,DD949EH	0.047µF,25V
C1556	QCTA1CH-101	CAPACITOR	100pF,16V
C1557	QCTA1CH-101	CAPACITOR	100pF,16V
C1560	QCYA1HK-102	CAPACITOR,DD949EH	0.001µF,50V
L1501	PU59152-4R7J	COIL,DD949EH	4.7µH
L1502	PU59152-1R0J	COIL	1µH
L1504	PU59152-1R0J	COIL,DD949EH	1µH
L1505	PU59152-120J	COIL,DD949EH	12µH
CF1503	PEVB0677	C DISCRIMINATER	
CF1504	PU52775-2	CERAMIC FILTER	
LC1501	PU59736-102	N FILTER,DD949EH	
LC1502	PU59736-102	N FILTER,DD949EH	
X1501	PEVB0479	CRYSTAL RESONATOR	
X1502	PEVB0660	CRYSTAL RESONATOR,DD949EH	
T1501	QQR0583-001	LC FILTER	
SD1	PQ35057	SHIELD FRAME	
CN1501	PEMC0712-105	PIN HEADER,(1-5)MAIN	
CN1502	PEMC0712-105	PIN HEADER,(1-5)MAIN	

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DISPLAY BOARD ASSEMBLY <28>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW1	PB11055B1-02	DISPLAY BOARD ASSEMBLY,DD949EH	
		PB11055C1	DISPLAY BOARD ASSEMBLY,DD949E	
⚠	IC1201	UPD16312GB(P)	IC	
⚠		or UPD16312GB(M)	IC	
	IC1202	GP1U281X	IR DETECT UNIT	
		or PIC-21143TE5	IR DETECT UNIT	
		or PNA4652M00XB	IR DETECT UNIT	
	D1201	1N4148M	DIODE	
		or 1SS133	DIODE	
	D1202	1N4148M	DIODE	
		or 1SS133	DIODE	
	D1203	1N4148M	DIODE	
		or 1SS133	DIODE	
	D1204	1N4148M	DIODE	
		or 1SS133	DIODE	
	D1205	1N4148M	DIODE	
		or 1SS133	DIODE	
	D1207	RD9.1ES-T1B2	ZENER DIODE	
⚠	D1208	SLR-342MC3F	LE DIODE,AUTO SP/LP	
⚠	D1209	SLR-342DC3F	LE DIODE,TRI-R	
⚠	D1210	SLR-56DU3F	LE DIODE,T.SCAN	
⚠	D1211	SLR-56DU3F	LE DIODE,T.SCAN	
	D1224	1N4148M	DIODE	
		or 1SS133	DIODE	
	D1225	1N4148M	DIODE,DD949E	
		or 1SS133	DIODE,DD949E	
	D1251	1N4148M	DIODE	
		or 1SS133	DIODE	
	D1252	1N4148M	DIODE	
		or 1SS133	DIODE	
	R1201	QRD161J-103	RESISTOR	10kΩ,1/6W
	R1202	QRD161J-103	RESISTOR	10kΩ,1/6W
	R1203	QRD161J-103	RESISTOR	10kΩ,1/6W
	R1204	QRD161J-103	RESISTOR	10kΩ,1/6W
	R1205	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R1206	QRD161J-102	RESISTOR	1kΩ,1/6W
	R1207	QRD161J-471	RESISTOR	470Ω,1/6W
	R1208	QRD161J-563	RESISTOR	56kΩ,1/6W
	R1209	QRD161J-103	RESISTOR	10kΩ,1/6W
	R1210	QRD161J-103	RESISTOR	10kΩ,1/6W
	R1211	QRD161J-103	RESISTOR	10kΩ,1/6W
	R1212	QRD161J-472	RESISTOR	4.7kΩ,1/6W
⚠	R1217	QRD161J-471	RESISTOR	470Ω,1/6W
⚠	R1218	QRD161J-471	RESISTOR	470Ω,1/6W
⚠	R1219	QRD161J-471	RESISTOR	470Ω,1/6W
⚠	R1220	QRD161J-471	RESISTOR	470Ω,1/6W
	R1221	QRD161J-333	RESISTOR	33kΩ,1/6W
	R1222	QRD161J-333	RESISTOR	33kΩ,1/6W
	R1223	QRD161J-333	RESISTOR	33kΩ,1/6W
	R1224	QRD161J-333	RESISTOR	33kΩ,1/6W
	R1252	QRD161J-0R0	RESISTOR	0Ω,1/6W
	C1201	QETC1CM-476	E CAPACITOR	47μF,16V
	C1202	QCFB1HZ-104	CAPACITOR	0.1μF,50V
	C1203	QETC0JM-227	E CAPACITOR	220μF,6.3V
	C1204	QCSB1HJ-470	CAPACITOR	47pF,50V
	C1205	QCSB1HJ-330	CAPACITOR	33pF,50V
	C1206	QETC1HM-106	E CAPACITOR	10μF,50V
	C1207	QCBB1HJ-102	CAPACITOR	0.001μF,50V
	C1251	QCBB1HJ-561	CAPACITOR	560pF,50V
	C1252	QCBB1HJ-561	CAPACITOR	560pF,50V
	C1253	QCBB1HJ-561	CAPACITOR	560pF,50V
	C1254	QCBB1HJ-561	CAPACITOR	560pF,50V
	C1255	QCBB1HJ-561	CAPACITOR	560pF,50V
	L1201	QQL29BJ-331Z	COIL	330μH
	L1251	QQL29BJ-3R3Z	COIL	3.3μH
	L1252	QQL29BJ-3R3Z	COIL	3.3μH
	L1253	QQL29BJ-3R3Z	COIL	3.3μH
	L1254	QQL29BJ-3R3Z	COIL	3.3μH
	S1201	PESW0525-02Z	TACT SWITCH,TV PROG+	
	S1202	PESW0525-02Z	TACT SWITCH,TV PROG-	
	S1203	PESW0525-02Z	TACT SWITCH,POWER	
	S1204	PESW0525-02Z	TACT SWITCH,TIMER	
	S1206	PESW0525-02Z	TACT SWITCH,TRI-R	
	S1207	PESW0525-02Z	TACT SWITCH,SPATIALIZER	
	S1208	PESW0525-02Z	TACT SWITCH,AUTO SP/LP	
	S1209	PESW0525-02Z	TACT SWITCH,REC	
	S1210	PESW0525-02Z	TACT SWITCH,PAUSE	
	S1211	PESW0525-02Z	TACT SWITCH,SP/LP	
	S1212	PESW0525-02Z	TACT SWITCH,STOP/EJECT	
	S1213	PESW0525-02Z	TACT SWITCH,PLAY	
	S1214	PESW0525-02Z	TACT SWITCH,REW	
	S1215	PESW0525-02Z	TACT SWITCH,A.DUB	
	S1216	PESW0525-02Z	TACT SWITCH,FF	
	S1220	PESW0525-02Z	TACT SWITCH,INSERT	
	DI1201	QLF0007-001	FL TUBE	
	HD1	PQM30038-2-2	LED HOLDER,X2 D1208 D1209	
	HD2	PQM30038-1-2	LED HOLDER,X2 D1210 D1211	
	HD3	PQ34668	FDP HOLDER(L),DI1201	
	HD4	PQ34669	FDP HOLDER(R),DI1201	
	FW1201	PW30101-60AA442	PARALLEL WIRE,REC SAFETY	
	FW1202	PW30101-60AA442	PARALLEL WIRE,CASSETTE SWITCH	
	J1201	PEMC1009-04	PIN JACK,VIDEO	
	J1202	PEMC1010-03	PIN JACK(SW),AUDIO(L)	
	J1203	PEMC1010-02	PIN JACK(SW),AUDIO(R)	
	CN1201	PEMC1101-112	FFC CONNECTOR,(1-12)MAIN	
	CN1202	PEMC1101-106	FFC CONNECTOR,(1-6)MAIN	

* * *

REC SAFETY BOARD ASSEMBLY <32>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PW3	PB11055A3-01	REC SAFETY BOARD ASSEMBLY
	S1241	PESW0589	PUSH SWITCH

* * *

CASSETTE SWITCH BOARD ASSEMBLY <33>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PW4	PB11055A4-01	CASSETTE SW BOARD ASSEMBLY
	S1242	PU61320	PUSH SWITCH

* * *

TRI-R BOARD ASSEMBLY <39>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW1	PB11049A-01	TRI-R BOARD ASSEMBLY	
	IC3001	JCP0065	IC	
	Q3001	DTC124EU	TRANSISTOR	
	R3001	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
	R3002	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
	R3003	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
	R3004	QRSA08J-564YN	RESISTOR	560kΩ,1/10W
	R3005	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R3006	QRD161J-184	RESISTOR	180kΩ,1/6W
	R3007	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R3008	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R3009	QRSA08J-155YN	RESISTOR	1.5MΩ,1/10W
	C3001	QCTA1CH-221	CAPACITOR	220pF,16V
	C3003	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C3004	QCTA1CH-221	CAPACITOR	220pF,16V
	C3005	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C3006	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C3007	QCSB1HJ-220	CAPACITOR	22pF,50V
	C3008	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C3009	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C3010	QCTA1CH-331	CAPACITOR	330pF,16V
	C3011	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C3012	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C3013	QETC1CM-476	E CAPACITOR	47μF,16V
	C3014	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C3015	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C3016	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C3017	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C3018	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C3019	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C3020	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C3021	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C3022	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C3023	QCYA1CK-474	CAPACITOR	0.47μF,16V
	C3024	QCYA1CK-474	CAPACITOR	0.47μF,16V
	C3025	QCTA1CH-391	CAPACITOR	390pF,16V
	C3031	QETC1HM-105	E CAPACITOR	1μF,50V
	BK1	LP40077-001A	BRACKET(PWB)	
	CN3001	PEMC0712-110	PIN HEADER,(1-10)MAIN	

* * *

VSC BOARD ASSEMBLY <72>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW1	PB10995A-01	VSC BOARD ASSEMBLY	
	IC2501	LC85401E	IC	
	IC2502	LC32256P-80	IC	
	Q2501	2SC4081(QRS)	TRANSISTOR	
	Q2502	DTC144WU	TRANSISTOR	
	D2501	1N4148M	DIODE	
		or 1SS133	DIODE	
		or MA165	DIODE	
	R2501	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R2502	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R2503	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R2504	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R2505	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R2506	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R2507	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R2508	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
	R2509	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R2510	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R2511	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R2512	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R2513	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R2514	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R2515	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R2516	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R2518	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R2519	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R2520	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	C2501	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
	C2502	QCYA1HK-562	CAPACITOR	0.0056μF,50V
	C2503	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C2505	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
	C2506	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C2507	QEKJ1CM-226	E CAPACITOR	22μF,16V
	C2508	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C2509	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C2510	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C2511	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C2513	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C2514	QCYA1HK-103	CAPACITOR	0.01μF,50V
	L2501	PELN0975-2R2JZ	COIL	2.2μH
	LPF2501	PELN1137	LOW PASS FILTER	
	CF2501	PEVB0671	RESONATOR	
	LC2501	PU59736-103	N FILTER	
	CN2501	PEMC0712-109	PIN HEADER,(1-9)MAIN	

* * *

JOG BOARD ASSEMBLY <85>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PW2	PB11055B2	JOG BOARD ASSEMBLY
	UN1291	PEME0976	JOG ASSEMBLY
	CN1205	PEMC1101-108	FFC CONNECTOR

SECTION 6
TECHNICAL INFORMATION

6. SYSCON CIRCUIT

6.1.1 Syscon CPU pin function (IC701) 1/2

PIN NO	LABEL	IN/OUT	NOTE
1	S. CURVE	IN	TUNING CHECK
2	AVRG FM	IN	AUTO TRACKING DETECT (AVERAGE VOLTAGE OF PB FM LEVEL INPUT)
3	P. DOWN	IN	POWER DOWN DETECT (POWER DOWN: H to L)
4	6.5H DET	IN	PB SWITCHING POINT ADJUST PULSE
5	AVSS	-	GND
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 kHz)
8	X1	-	TIMER CLOCK (32.768 kHz)
9	VSS	-	GND
10	OSC1	-	SYSTEM CLOCK (10 MHz)
11	OSC2	-	SYSTEM CLOCK (10 MHz)
12	RESET	-	RESET AT CONNECT VCR TO AC
13	(MNI)	-	NC
14	LSC	IN	MECHANISM MODE DETECT (C)
15	LSB	IN	MECHANISM MODE DETECT (B)
16	LSA	IN	MECHANISM MODE DETECT (A)
17	C.L. END	OUT	CASSETTE TAPE LOAD SWITCH (CASSETTE IN: L)
18	RECSF	OUT	REC SAFETY SWITCH DETECT (SW ON: L)
19	STTS	IN	LEADER TAPE DETECT (DETECT ON: L)
20	ENDS	IN	TRAILER TAPE DETECT (DETECT ON: L)
21	R. PAUSE	IN	REMOTE PAUSE CTL (PAUSE ON: L)
22	TU FG	IN	TAKE-UP REEL ROTATION DET/TAPE REMAIN
23	SUP FG	IN	SUPPLY REEL ROTATION DET/TAPE REMAIN
24	A. MUTE	IN	AUDIO MUTE CONTROL (MUTE ON: H)
25	DD CS	OUT	CHIP SELECT from DD CPU
26	DD BUSY/JSB	IN	DATA TRANSMIT PERMISSION from DD CPU/JOG DIAL PULSE INPUT (B)
27	DD RESET	OUT	RESET PULSE to DD CPU
28	PLL DATA	OUT	TUNING IC DATA
29	LOCK DET	IN	TUNING LOCK CHECK
30	PLL CE	OUT	TUNING IC CHIP ENABLE
31	TU CTL(H)	OUT	TUNER CONTROL (TUNER ON: H)
32	REC ST(H)	OUT	REC START: H
33	H. RECST	-	NC
34	A. WIDE(H)	OUT	AUDIO EFECT CONTROL (AUDIO WIDE: H)
35	P. MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE ON: L)
36	DUTY I/O	IN/OUT	IN/OUT INDEX DATA CONTROL
37	B/W(H)	OUT	BLACK/WHITE SWITCH DETECT
38	REC(H)	OUT	REC MODE: H
39	COL ROT	OUT	COLOUR ROTATION CONTROL INPUT
40	*AV CTL4*	OUT	*INPUT SELECT (FRONT or REAR)*

Table 6-1-1 SYSCON CPU pin function(1/2)

6.1.2 Syscon CPU pin function (IC701) 2/2

PIN NO	LABEL	IN/OUT	NOTE
41	SECAM VL(H)	-	NC
42	EXP DATA	OUT	EXPANDER IC(IC705) DATA OUTPUT
43	I2C CLK	OUT	DATA TRANSFER CLOCK to TUNER AND ON SCREEN
44	I2C DATA	IN	DATA INPUT from TUNER AND ON SCREEN
45	VPCTL	OUT	V. PULSE ADDITION TIMING CONTROL
46	SYNC DET	OUT	SYNC DETECT (NO SYNC: H)
47	V. UP(H)	OUT	CAPSTAN MOTOR SPEED CONTROL (VOLTAGE UP CONTROL: M12V(L) TO M17V(H)
48	SECAM DET	-	NC
49	MESECAM DET	OUT	MESECAM MODE: H
50	RC IN	IN	REMOTE CONTROL DATA INPUT
51	FLYST(L)	IN	FLYING ERASE HEAD CONTROL (START: L)
52	CTL C/D	IN	CTL PULSE INPUT (MODE DETECT/BLANK PORTION DET)
53	RAE OUT	OUT	REMOTE PAUSE CONTROL OUTPUT
54	CAP REV	OUT	CAPSTAN MOTOR CONTROL (FWD: H/REV: L)
55	OSD CS	OUT	CPU CHIP SELECT to ON SCREEN CPU
56	COM CLOCK	OUT	DATA TRANSFER CLOCK OUTPUT for EXPAND IC AND TUNER
57	S OUT	OUT	SERIAL DATA OUTPUT to DISPLAY CPU, ON SCREEN CPU AND DD CPU
58	S IN	IN	SERIAL DATA INPUT from DISPLAY CPU, ON SCREEN CPU AND DD CPU
59	S CLK	OUT	SERIAL DATA TRANSFER CLOCK for DISPLAY CPU, ON SCREEN CPU AND DD CPU
60	H. DATA	OUT	SERIAL DATA OUTPUT to VIDEO/AUDIO CPU
61	STB	OUT	CLOCK OUTPUT PERMISSION to DISPLAY CPU
62	H. CLK	OUT	SERIAL DATA TRANSFER CLOCK for VIDEO/AUDIO CPU
63	VCC	-	SYSTEM POWER
64	S DATA	OUT	SERIAL DTA OUTPUT for SERVO CPU
65	LCM3	OUT	LOADING MOTOR DRIVE (3)
66	PAUSE	OUT	CAPSTAN MOTOR CONTROL (PAUSE: L)
67	CTL CLOCK	IN	INDEX CONTROL CLOCK INPUT
68	LCM2	OUT	LOADING MOTOR DRIVE (2)
69	CAPFG	IN	TAPE SPEED DETECT/BACK SPACE COUNT
70	LCM1	OUT	LOADING MOTOR DRIVE (1)
71	D. FF	IN	DRUM ROTATION DETECT/ REC TIMING CONTROL
72	AVCC	-	SYSTEM POWER (FOR ANALOG)
73	SCR IN	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE: H)
74	PROTECT	IN	SWD5V/12V DETECT
75	DRUM V	OUT	DRUM MOTOR CONTROL
76	CAP V	OUT	CAPSTAN MOTOR CONTROL
77	ND(L)	IN	NORMAL AUDIO DETECT (NORMAL AUDIO: L)
78	IF AGC	IN	IF AGC DETECT
79	A. LVL. R	IN	AUDIO INDICATOR LEVEL INPUT (R ch)
80	A. LVL. L	IN	AUDIO INDICATOR LEVEL INPUT (L ch)

Table 6-1-2 SYSCON CPU pin function(2/2)

SECTION 1
ADJUSTMENT

1.1 PREPARATION

1.1.1 Precautions

(1) Disconnect VCR from AC power before soldering.
(2) Avoid imparting stress to wires when disengaging connectors.
(3) Determine and correct the cause of difficulty before proceeding to adjustments.Do not disturb settings unnecessarily.
(4) Use care not to damage tabs,claws,etc during repairs.
(5) Install the cassette housing assembly only when the mechanism is in the MECHANISM ASSEMBLING MODE position.
(6) When installing the Front panel assembly,be sure to engage the housing door with the door opener of the cassette housing assembly.
If this is omitted,the cassette door will not open at Eject and the cassette can not be removed.

1.1.2 Check without cassette housing assembly.

Mechanism operations can be observed easily by removing the cassette housing assembly. Use the MECHANISM SERVICE MODE.

1.1.3 Manual removal of loaded tape

When the deck enters the emergency mode with cassette tape loaded and it can not be ejected by pressing the EJECT button,take out of the cassette tape according to the following procedure.

(1) Disconnect the power cord from AC outlet then take out the Top cover and Front panel assembly.
(2) Turn the loading motor on the Main deck assembly by hand in the unloading direction to where the pole base assembly (supply and take-up) is positioned below the cassette tape.At that time, pay careful attention to the tape not to get soiled with grease.
(3) Take out 4 screws of the cassette housing assembly.
(4) Remove the cassette housing with slackened tape and guard panel of cassette.
(5) Wind up the tape by turning the reel hub(either supply or take-up side for convenience) from the bottom of the cassette,and remove the cassette tape.

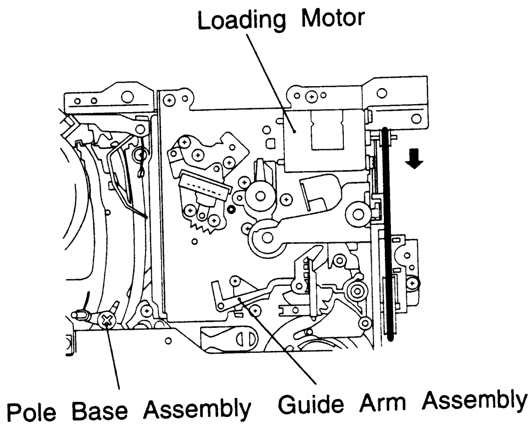


Fig. 1-1-1

1.1.4 Test Equipment

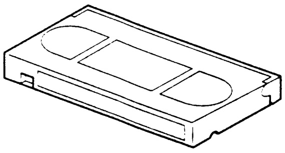
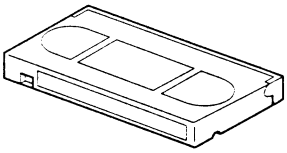
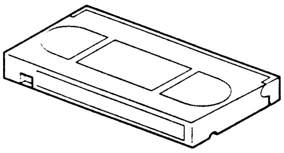
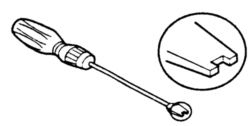
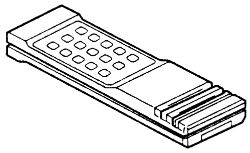
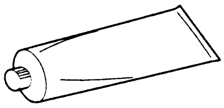
Alignment tape (SP) NTSC:MHP PAL:MHPE	Alignment tape (EP,LP) NTSC(EP):MHP-L PAL(LP):MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head positioning tool PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Grease KYODO-SH-P	
			

Table 1-1-1 Test equipment

1.2 MAIN MECHANISM PARTS

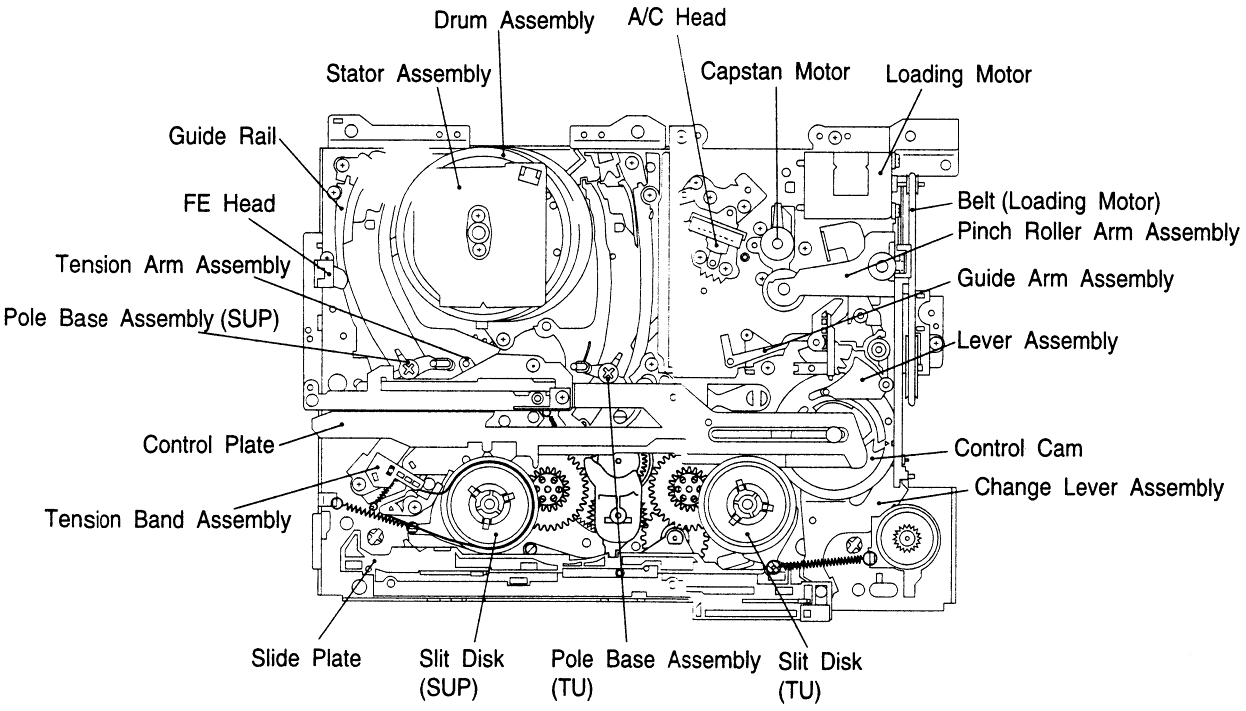

Drum Assembly
A/C Head
Stator Assembly
Capstan Motor
Loading Motor
Guide Rail
FE Head
Tension Arm Assembly
Pole Base Assembly (SUP)
Belt (Loading Motor)
Pinch Roller Arm Assembly
Guide Arm Assembly
Lever Assembly
Control Plate
Control Cam
Change Lever Assembly
Tension Band Assembly
Slide Plate
Slit Disk (SUP)
Pole Base Assembly (TU)
Slit Disk (TU)

Fig. 1-2-1 Top view of main deck

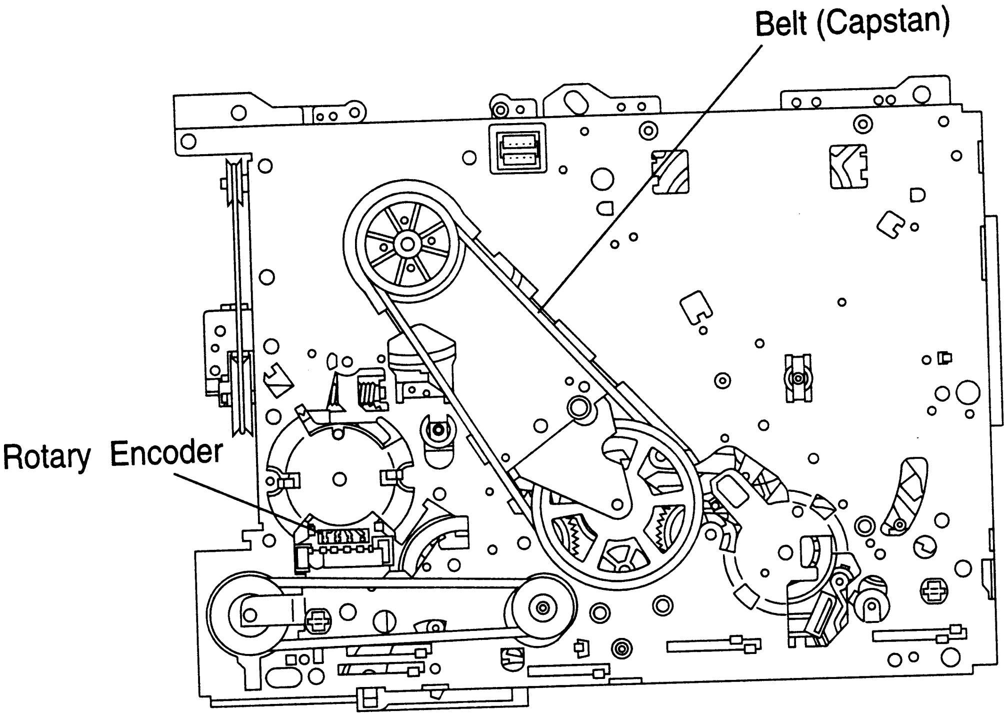


Fig. 1-2-2 Bottom view of main deck

1.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable,but usually not feasible in practice.Therefore,perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads,tape guides and brush can detract from playback picture quality and in extreme cases,even damage the tape.For cleaning,use a finemesh cotton cloth(about the texture of a white dress-shirt) moistened in alcohol. It is recommended to also clean thetape tension posts and capstan.

- To clean the video heads,press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke,as this may damage the heads.

1.2.2 Lubrication

Oil and grease do not normally require periodic replenishing. Apply only when replacing lubricated parts(also clean and replace lubrication of mating parts if soiled). For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly. Before oiling,clean with alcohol. Apply one or two drops of oil. Avoid excess oil.

1. Table 1-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KYODO-SH-P

Table 1-2-1

2. Grease is not required for a replacement cassette housing assembly,as this has been applied at the factory.

NOTE : *Stir grease that has been stored for an extended period.*

1.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage.Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced as and when required.

1.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★ ○	○
	A/C head	★ ○	★ ○
	Lower drum motor assembly	★	★ ○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Slit disk (supply, take-up)		○
	Clutch unit (supply, take-up)		○
	Worm gear assembly		○
	Control plate		○
	Slide plate		○
Other	Brush assembly	★ ○	★ ○
	Tension band assembly	○	○
	Rotary encoder		○

★ : Cleaning

○ : Inspection or Replacement if necessary

Table 1-3-1

1.4 DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM

1.4.1 Precaution before disassembling mechanism

This mechanism has an exclusive operation mode provided for disassembling and installation of the mechanism (MECHANISM ASSEMBLING MODE), and it is suggested to set the mechanism to this mode before disassembly and installation.The exclusive mechanism operation mode is not generally used and becomes available by manual setting only. Then this procedure starts with the condition that the cabinet parts,cassette housing assembly and PRE/REC board assembly have been removed.

1.4.2 How to set the exclusive mechanism operation mode (MECHANISM ASSEMBLING MODE)

(1) Turn the loading motor belt by hand.
(2) Confirm that the hole of the control cam are aligned to the deck hole as shown in Fig.1-4-1.

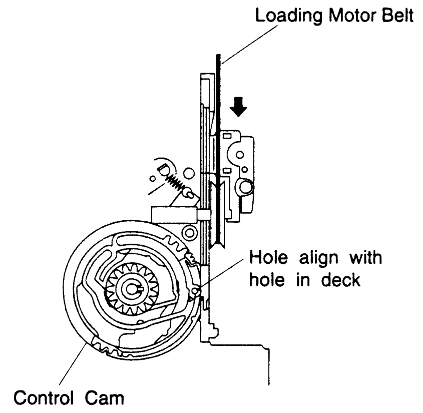


Fig. 1-4-1

1.5 MAIN PARTS REPLACEMENT OF MECHANISM

1.5.1 Pinch Roller Arm Assembly

(1) Remove the slit washer.
(2) Tilt up the pinch roller assembly in direction of arrow.

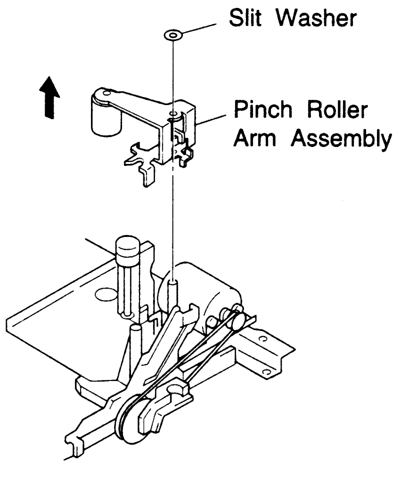


Fig.1-5-1

1.5.2 A/C Head

1. Removal

(1) Take out 2 screws (A).

(2) Remove the A/C head with head base.

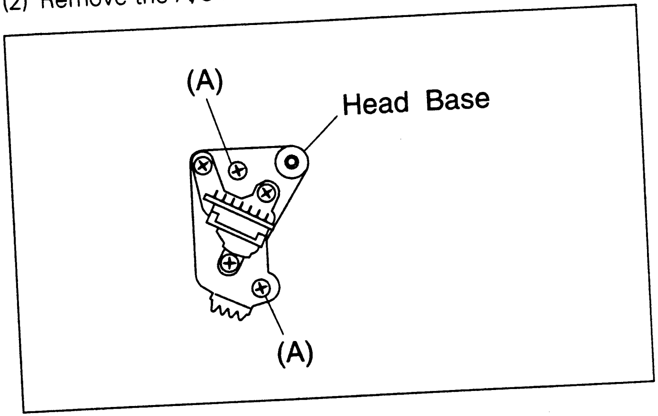

(A)
Head Base
(A)

Fig.1-5-2

(3) When replacing the A/C head only,remove 3 screws (B), use care not to misplace the 3 springs.

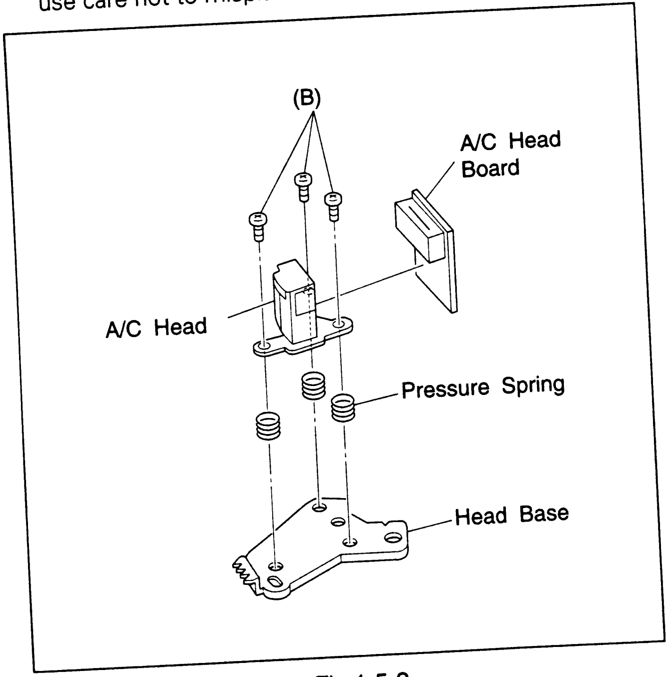
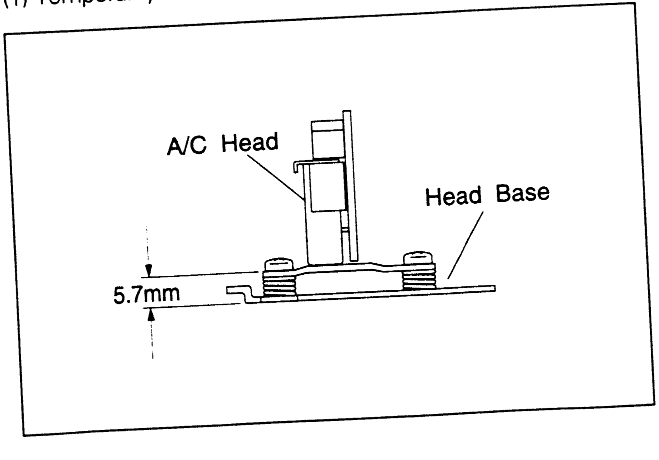

(B)
A/C Head Board
A/C Head
Pressure Spring
Head Base

Fig.1-5-3

2. Installation

(1) Temporarily set A/C head height as indicated in Fig. 1-5-4.


A/C Head
Head Base
5.7mm

NOTES:

- *It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.*
- *Perform interchangeability adjustments after electrical adjustments.*

1.5.3 Pinch Plate

1. Removal

(1) Disengage 2 claws, then remove the pinch plate.

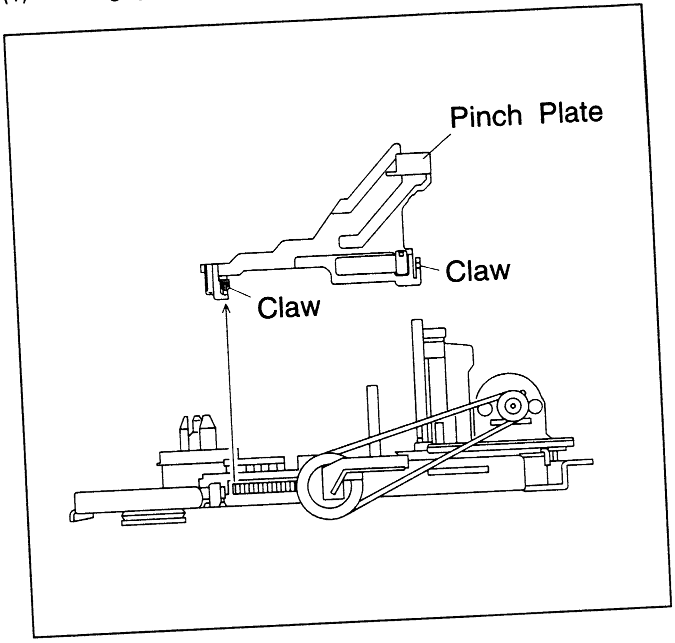

Pinch Plate
Claw
Claw

Fig.1-5-5

2. Installation

(1) When installing pinch plate,align rack of pinch plate and triangle mark of control cam as indicated in Fig.1-5-6.

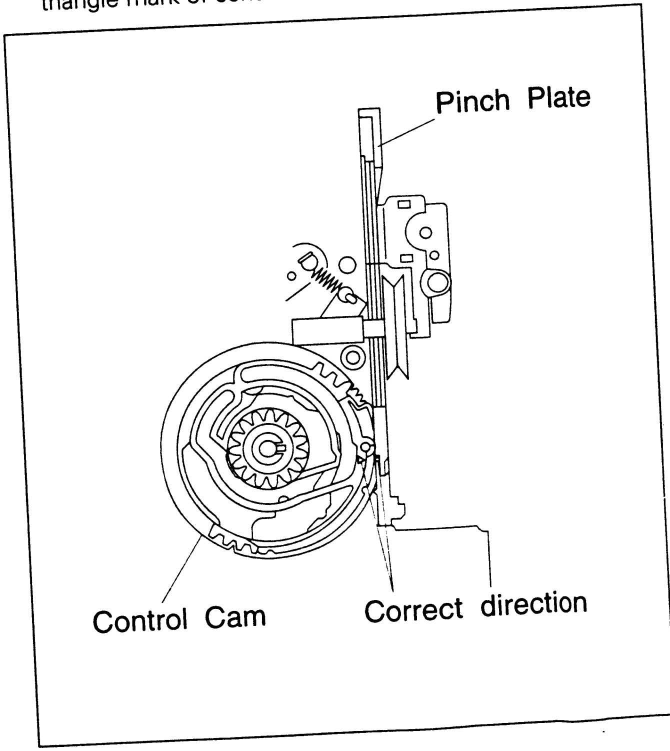

Pinch Plate
Control Cam
Correct direction

Fig. 1-5-6

1.5.4 Loading Motor

(1) Disengage the belt between loading motor and worm gear.

(2) Take out 2 screws (A) then remove the loading motor.

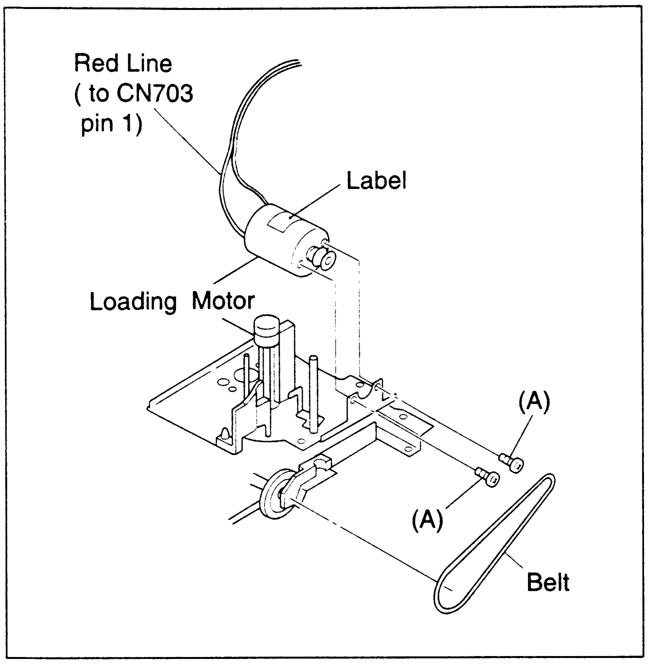

Red Line
(to CN703
pin 1)
Label
Loading Motor
(A)
(A)
Belt

Fig.1-5-7

1.5.5 Lever Assmebly,Sub Deck Assembly,Capstan Motor

(1) Take out 1 slit washer,then remove the lever assembly.

(2) Disengage the belt(capstan motor) from bottom of mechanism assembly first as indicated in Fig.1-5-10.

(3) Take out 2 screws (A), 1 screw (B) and remove the sub deck assembly as indicated in Fig.1-5-8.

(4) Take out 3 screws (C) and remove the capstan motor from the sub deck assembly as indicated in Fig.1-5-9.

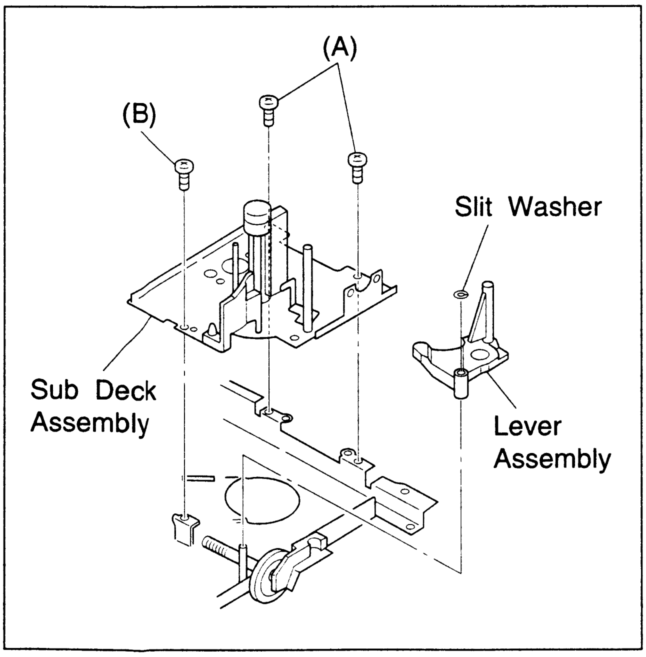

(A)
(B)
Slit Washer
Sub Deck
Assembly
Lever
Assembly

Fig.1-5-8

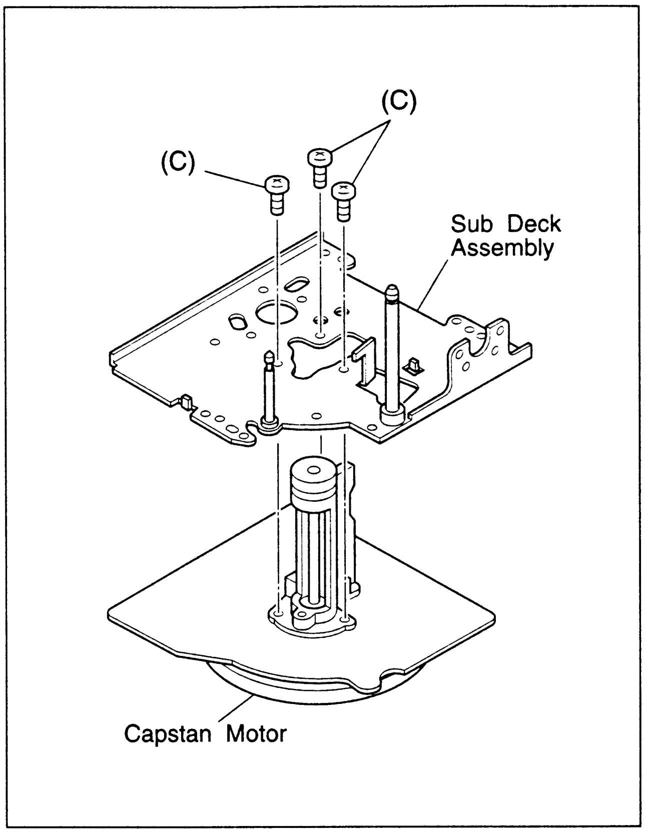

(C)
(C)
Sub Deck
Assembly
Capstan Motor

Fig.1-5-9

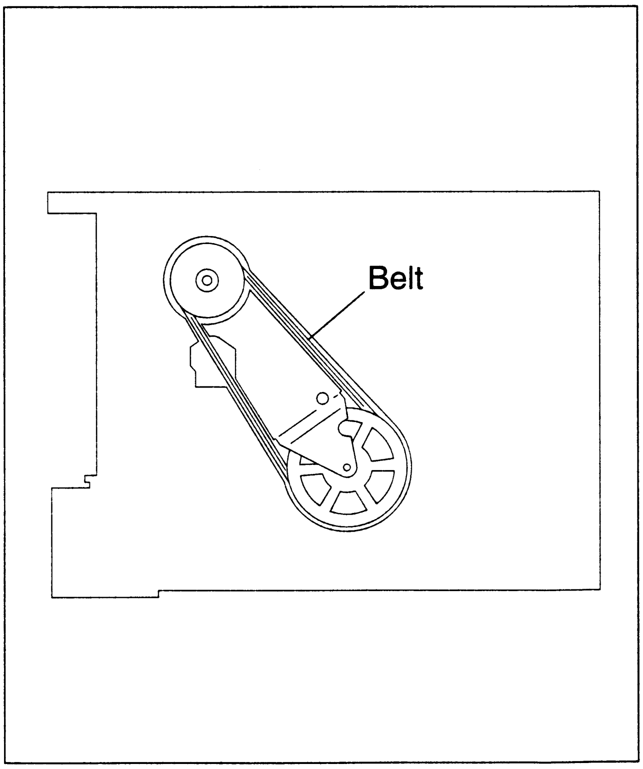


Fig.1-5-10

1.5.6 Control Bracket

(1) Take out 1 screw (A) and 1 screw (B).

(2) Remove the control bracket.

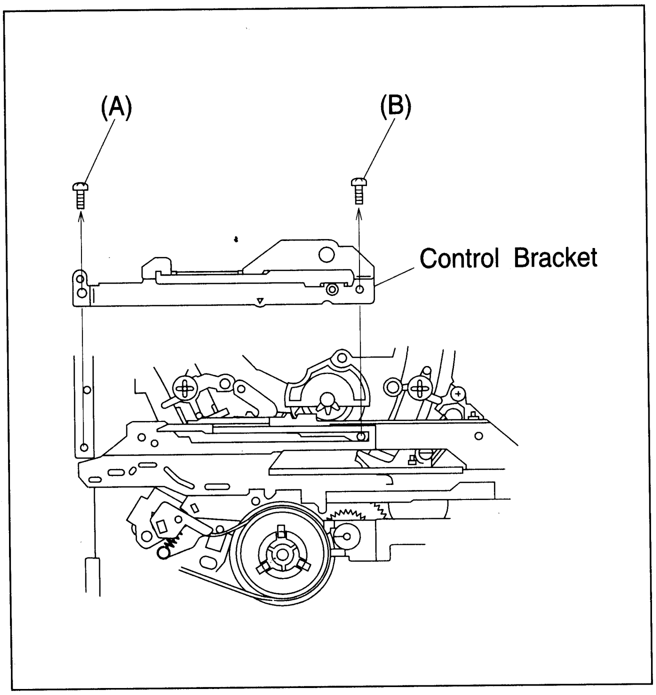

(A)
(B)
Control Bracket

Fig.1-5-11

1.5.7 Slit disk (take-up)

(1) Take out 1 slit washer.

(2) Remove the slite disk (take-up).

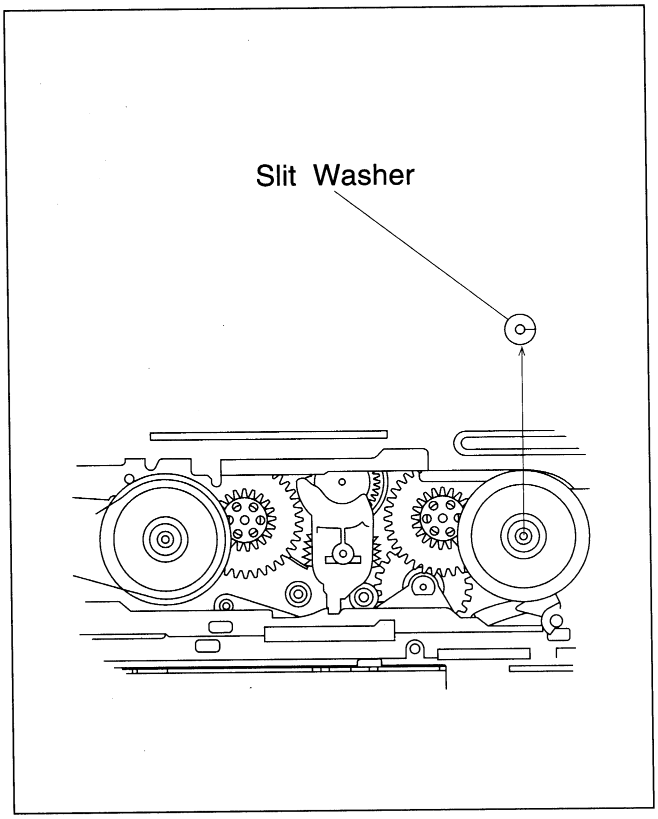

Slit Washer

Fig.1-5-12

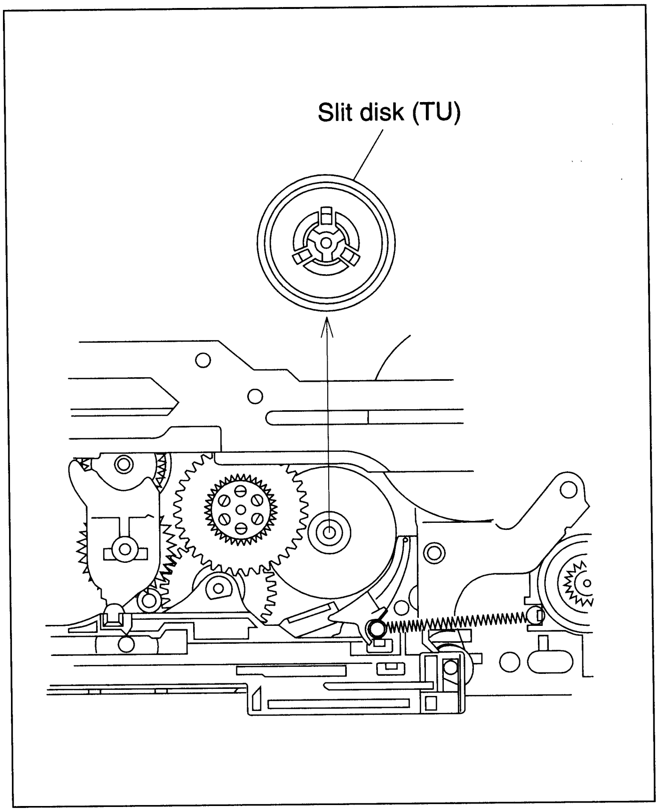

Slit disk (TU)

Fig.1-5-13

1.5.8 Control Plate

(1) Take out 1 slit washer.

(2) Disengage 2 claws and remove the control plate.

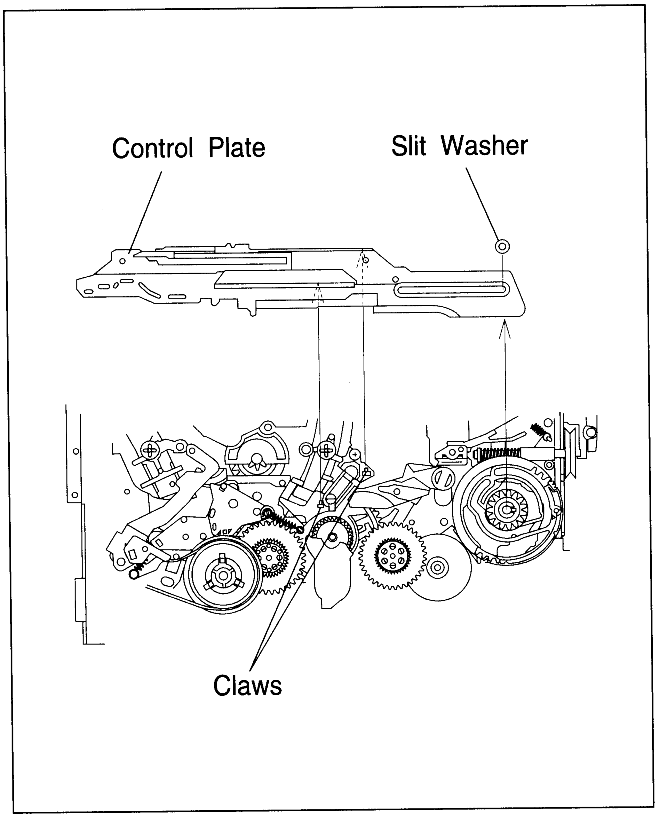

Control Plate
Slit Washer
Claws

Fig.1-5-14

1.5.9 Sub Brake(take-up),Control Cam

(1) Disengage 1 spring (a) and 1 claw then remove the sub brake (take-up).

(2) Disengage 1 claw and remove the control cam.

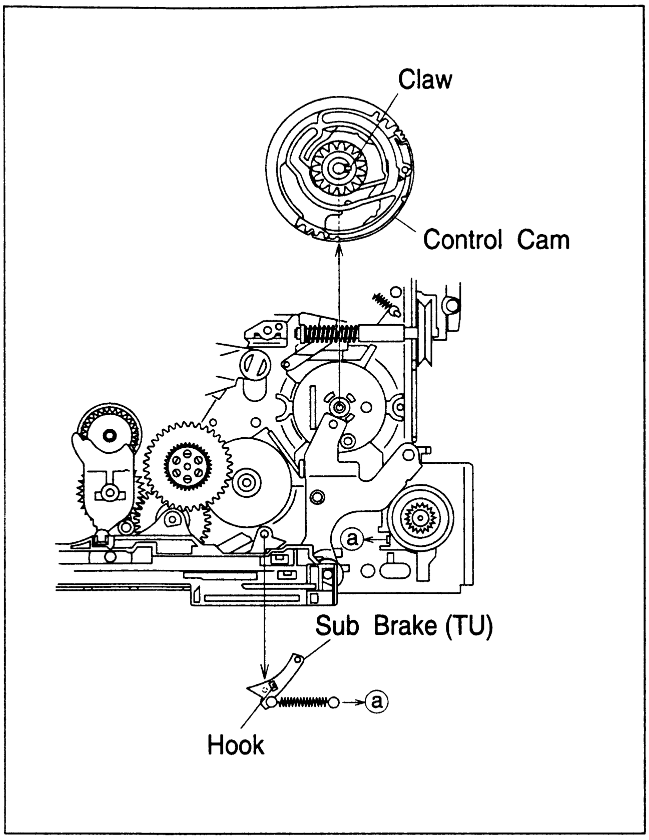

Claw
Control Cam
(a)
Sub Brake (TU)
(a)
Hook

Fig.1-5-15

1.5.10 Slide Plate

(1) Disengage 7 claws from bottom of the mechanism assembly and remove the slide plate.

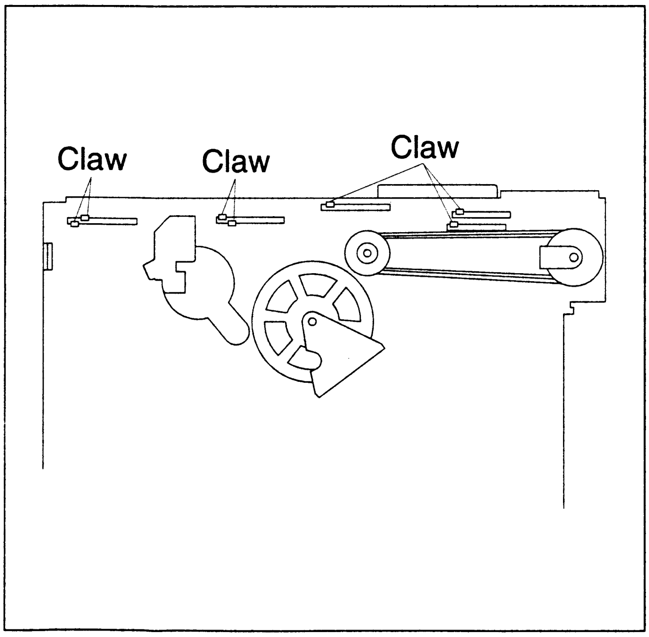

Claw
Claw
Claw

Fig. 1-5-16

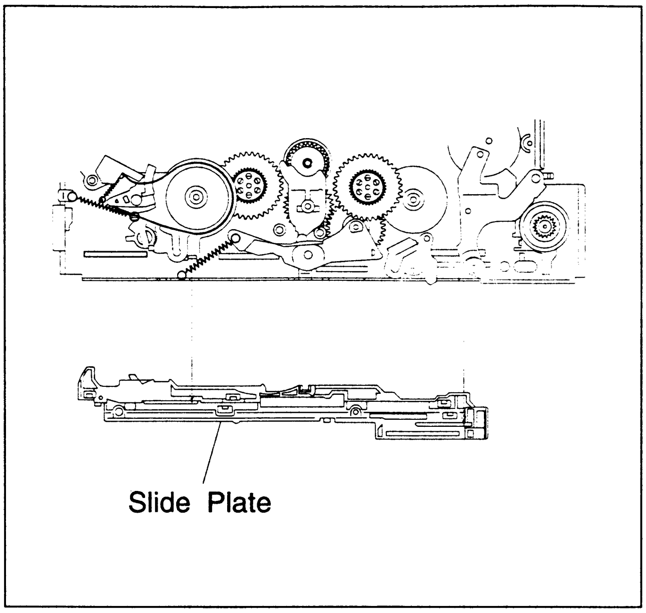

Slide Plate

Fig. 1-5-17

1.5.11 Change Lever,Rotary Encoder

(1) Remove the change lever.

(2) Disengage 2 claws and remove the rotary encoder.

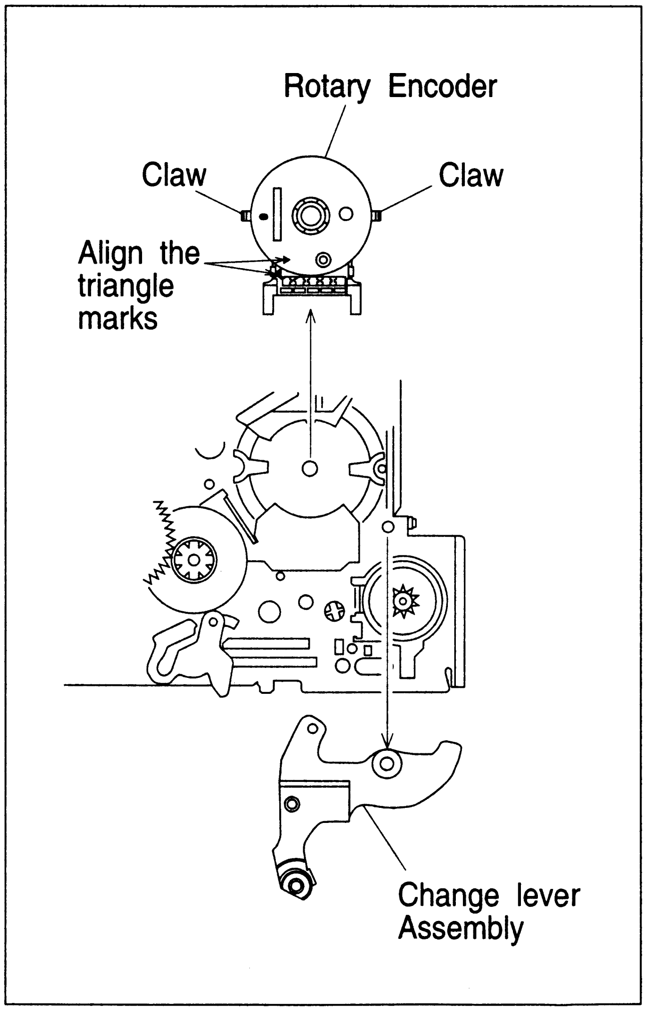

Rotary Encoder
Claw
Claw
Align the triangle marks
Change lever Assembly

Fig. 1-5-18

1.5.12 Sub Brake (supply),Tension Band Assembly, Tension Arm Assembly, Take-up Lever Assembly,Slit Disk(supply)

(1) Disengage 1 spring ⓐ.
(2) Disengage 1 claw and remove the sub brake (supply).
(3) Take out 1 spring ⓒ and slit washer then disengage 1 claw.
(4) Remove the tension arm assembly with tension band assembly.
(5) Remove the take-up lever assembly.
(6) Take out 1 slit washer then remove the slit disk(supply).

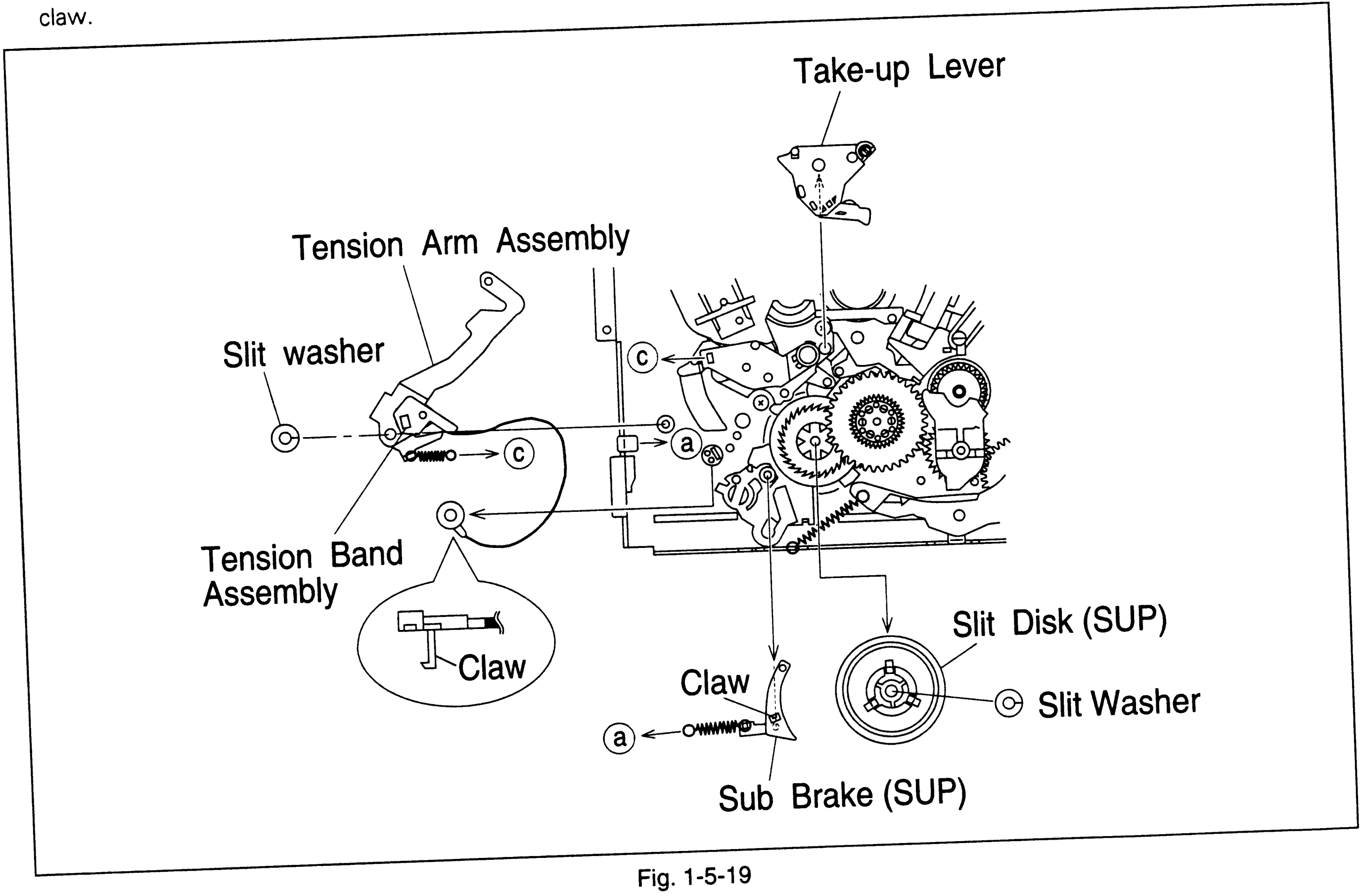

Take-up Lever
Tension Arm Assembly
Slit washer
ⓒ
ⓐ
ⓒ
Tension Band Assembly
Claw
Claw
ⓐ
Slit Disk (SUP)
Slit Washer
Sub Brake (SUP)

Fig. 1-5-19

1.5.13 Take-up Head,Tension Arm Lever

(1) Remove the take-up head and tension arm lever.

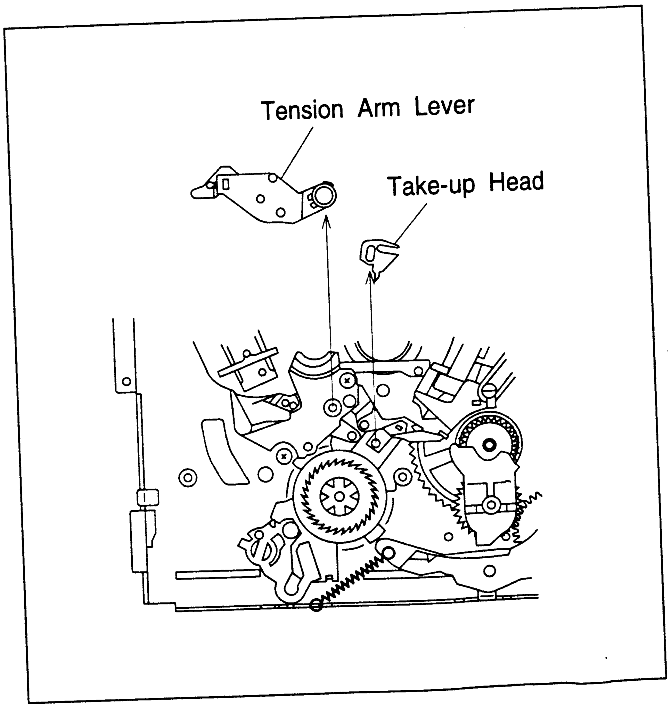

Tension Arm Lever
Take-up Head

Fig.1-5-20

1.5.14 Guide Rail

(1) Take out 5 screws Ⓐ and 1 screw Ⓑ.

(2) Disengage 4 claws and remove the guide rail.

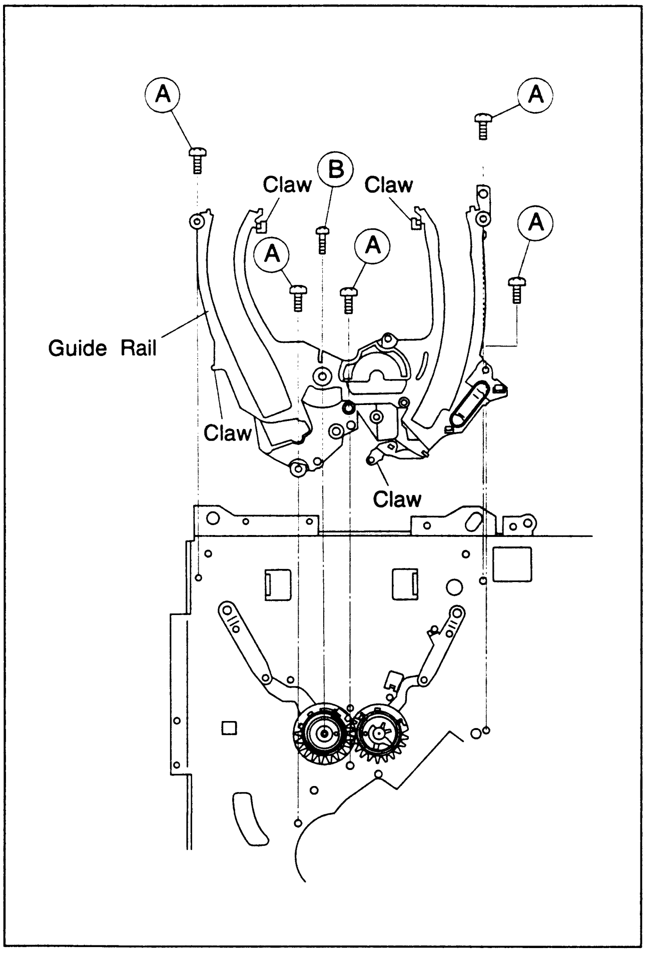

A
A
Claw
B
Claw
A
A
A
A
Guide Rail
Claw
Claw

Fig. 1-5-21

1.5.15 Stator Assembly

(1) Take out 2 screws (A).

(2) Raise the stator assembly in the direction indicated by the arrow to remove it.

(3) Remove the flat cable.

(4) To reinstall,first secure the flat cable,then insert 2 screws (A).

(5) After reinstalling, be sure to perform PB switching point adjustment.

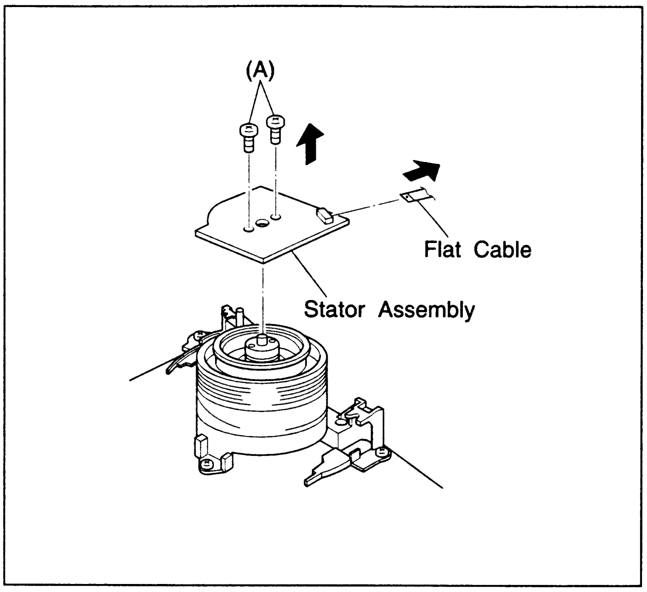

(A)
Flat Cable
Stator Assembly

Fig. 1-5-22

NOTE : *When refitting the connector, check that the flat wire is inserted correctly.*

1.5.16 Rotor Assembly

(1) Remove the stator Assembly.

(2) Take out 2 screws (B) and remove the rotor Assembly.

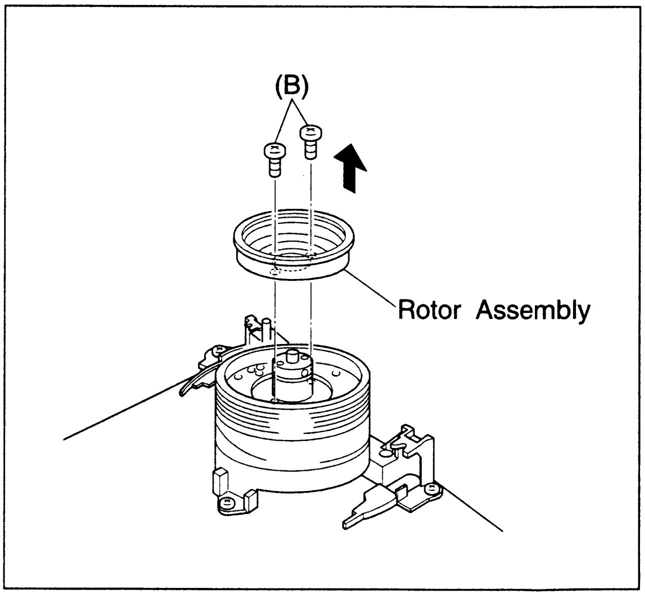

(B)
Rotor Assembly

Fig.1-5-23

(3) Align the upper drum assembly and rotor assembly phase as indicated in Fig.1-5-24.
(4) Overlap holes (a) of the upper drum assembly with holes (b) of the rotor assembly and secure with 2 screws (B) as indicated in Fig.1-5-23.

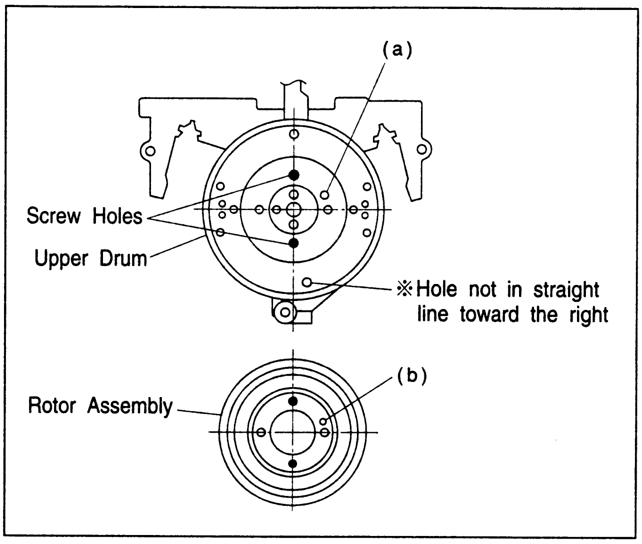

(a)
Screw Holes
Upper Drum
※Hole not in straight line toward the right
(b)
Rotor Assembly

Fig. 1-5-24

1.5.17 Upper Drum Assembly

1. Removal

(1) Remove the stator assembly and rotor assembly.
(2) Use a 1.5 mm hexagonal wrench to loosen the collar assembly screw and remove the collar assembly with brush, and remove the cap.
(3) Remove the upper drum assembly and use tweezers to remove the washer.

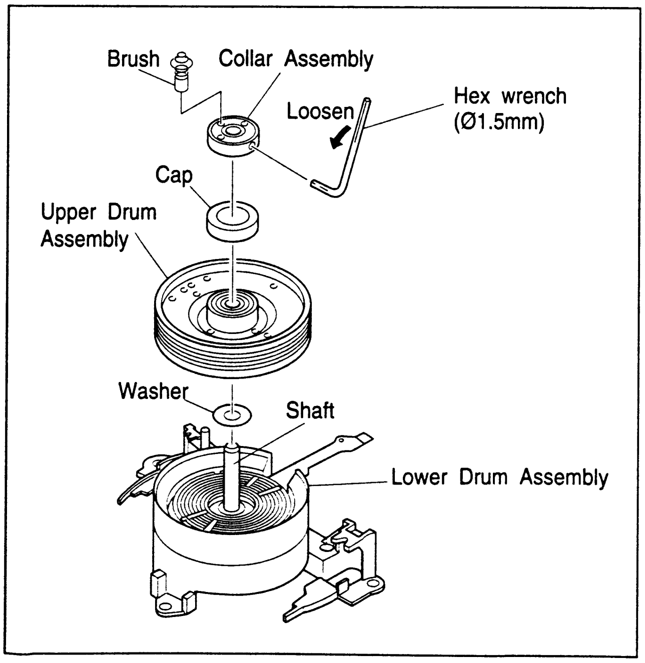

Brush
Collar Assembly
Loosen
Hex wrench (Ø1.5mm)
Cap
Upper Drum Assembly
Washer
Shaft
Lower Drum Assembly

Fig. 1-5-25

NOTE : *If the Brush is replaced, do not apply the grease to the contacts.*

2. Installation

(1) Use an air brush to clean the lower drum assembly and the coil section of the new upper drum assembly.
(2) Set a new washer on the drum shaft as indicated in Fig.1-5-25.

NOTE : *Be sure to use the new washer when replace the upper drum assembly.*

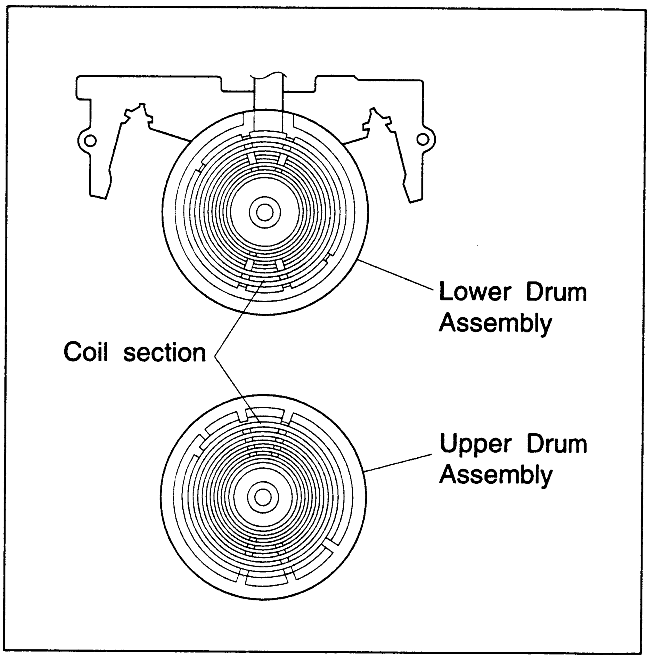

Lower Drum Assembly
Coil section
Upper Drum Assembly

Fig.1-5-26

(3) Note the top and bottom of the collar assembly and determine the position as indicated in Fig.1-5-27.

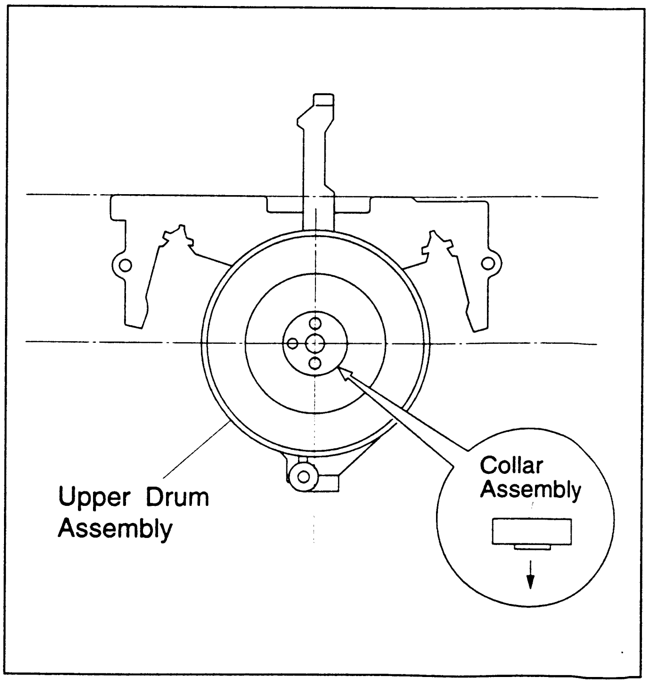

Upper Drum Assembly
Collar Assembly

Fig.1-5-27

(4) While pressing the collar assembly evenly from above with your fingertips,secure the hexagonal screw.

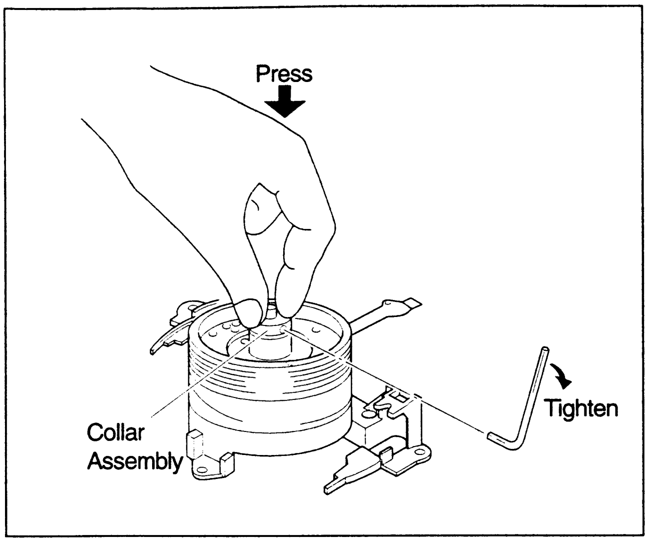

Press
Tighten
Collar Assembly

Fig.1-5-28

(5) After installing,gently turn the upper drum by hand and confirm normal rotation.
(6) Install the rotor assembly and stator assembly.
(7) Clean the upper and lower drum assemblies and perform the following adjustments;
  - PB switching point adjustment
  - Slow tracking preset adjustment
  - Interchangeability adjustment (be sure to check EP or LP mode)

1.6 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

1.6.1 Precaution

The rotary encoder and syscon circuit are closely interrelated.Therefore,the rotary encoder and control cam conection determines the operations of mechanical parts such as plates,gears,brakes,etc.Correct positioning of these parts is essential for smooth tape loading and mechanical operations.

1.6.2 Loadidg Arm Assemby (supply,take-up)

(1) Install the supply loading arm assembly and the take-up loading arm assembly so that their positioning markings on the respective gear face each other and the holes of their arms correspond to the holes on the main deck assembly respectively.
(2) After setting the guide rails,engage the pole base assemblies with the tip of the loading arms respectively. Then,enter the mechanism into the unloading mode to return the pole base assemblies to the front position.
(3) Reassemble the peripheral parts of the guide rail to its original position.

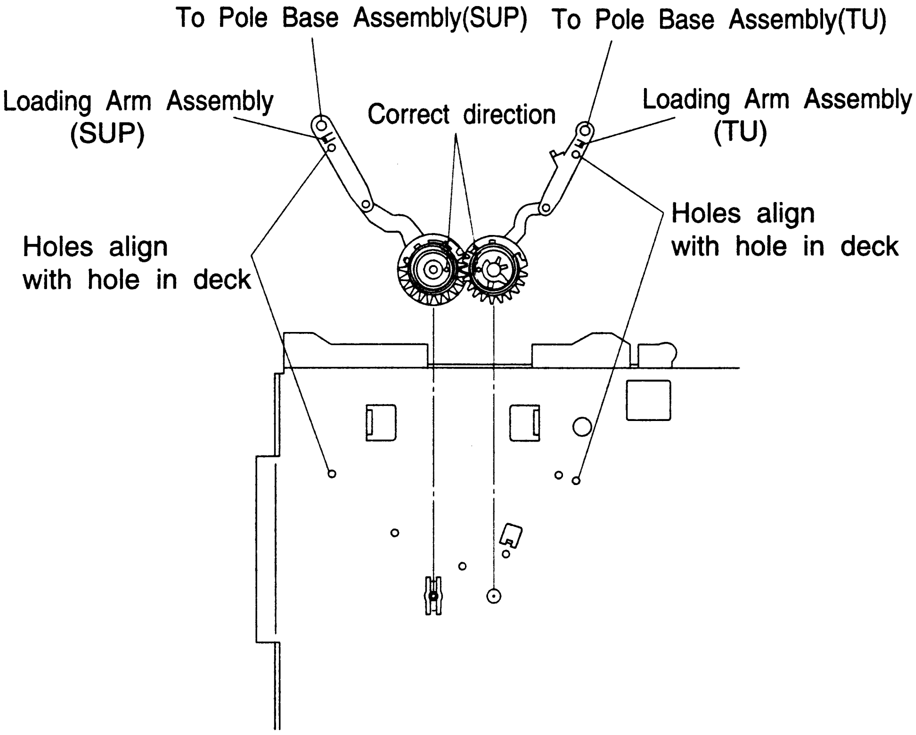

To Pole Base Assembly(SUP)
To Pole Base Assembly(TU)
Loading Arm Assembly (SUP)
Correct direction
Loading Arm Assembly (TU)
Holes align with hole in deck
Holes align with hole in deck

Fig. 1-6-1

1.6.3 Rotary Encoder,Change Lever,Control Cam

(1) When reinstalling the rotary encoder,adjust its position so as to fit the triangle marks each other and push it deep untill it is locked by the pawls.

(2) When reinstalling the change lever,set it so as to make its positioning hole correspond to the hole of the main deck assembly.

(3) When re-engaging the control cam,lower the capstan brake assembly while setting it so as to make its positioning hole correspond to the hole of the main deck assembly.

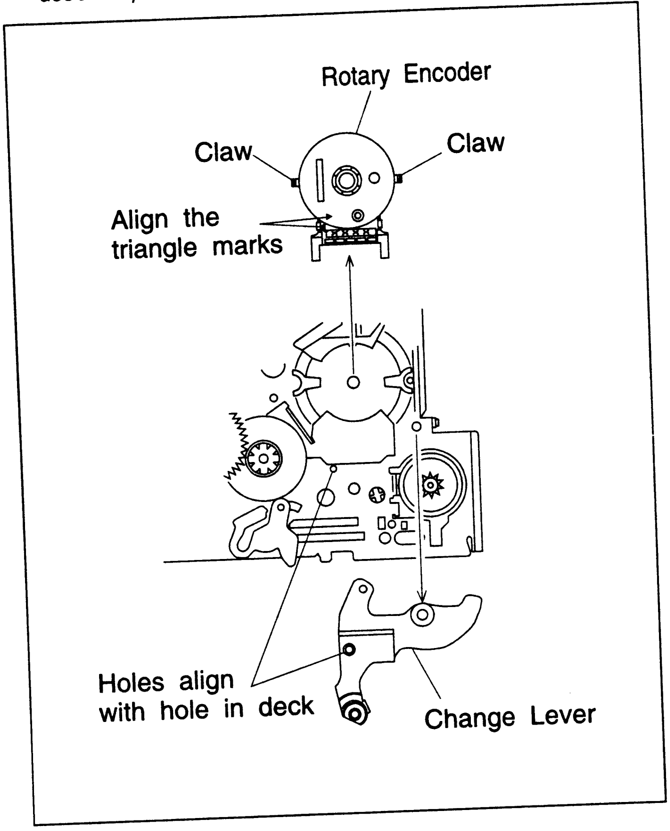

Rotary Encoder
Claw
Claw
Align the triangle marks
Holes align with hole in deck
Change Lever

Fig. 1-6-2

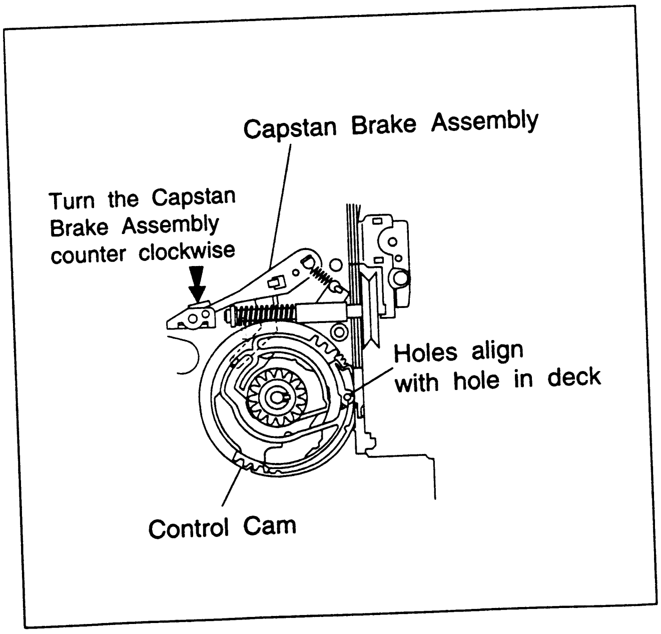

Capstan Brake Assembly
Turn the Capstan Brake Assembly counter clockwise
Holes align with hole in deck
Control Cam

Fig. 1-6-3

1.6.4 Slide Plate

(1) Lower both the main brake assemblies (supply and take-up) untill they touch the edge of the main deck assembly while reinstalling the slide plate so as to make the respective positioning holes of the main brake assemblies correspond to the holes on the main deck assembly.

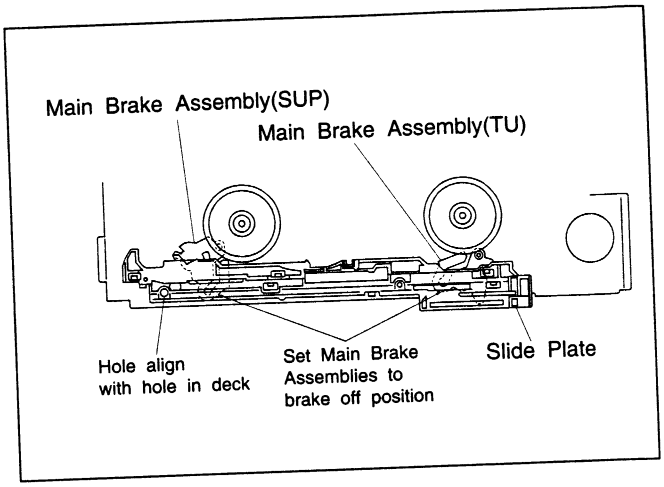

Main Brake Assembly(SUP)
Main Brake Assembly(TU)
Hole align with hole in deck
Set Main Brake Assemblies to brake off position
Slide Plate

Fig.1-6-4

1.6.5 Control Plate

(1) Reinstall the control plate so as to set the two positioning holes of it on the holes on the main deck assembly respectively and to set the positioning hole of the take-up lever on the hole of the main deck at the same time. When adjusting the hole position of the take-up lever,use a pair of tweezers to hold and move it since it is pulled by a tension spring.

(2) After reinstalling the control plate,fix it with the slit washer,control bracket-1 and -2.

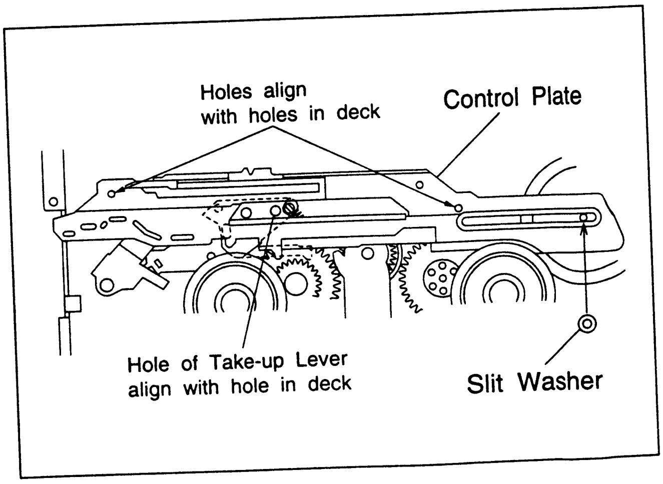

Holes align with holes in deck
Control Plate
Hole of Take-up Lever align with hole in deck
Slit Washer

Fig. 1-6-5

1.7 TAPE INTERCHANGEABILITY ADJUSTMENT

NOTE :
- *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components(A/C head,upper/lower drum assembly,pole base assembly,etc).*
- *Before using costly alignment tape,use a spare tape and confirm correct operation of the tape transport.*

1.7.1 Tape pattern

(1) Connect the oscilloscope to PB FM on the Main board.Use D.FF on the Main board as a trigger.

(2) Playback the SP stairstep portion of the alignment tape [MHP, MHPE]. Confirm that the FM waveform appears as indicated in Fig.1-7-1.

(3) Set the manual tracking position by pressing the /// button on the remote controller or TV PROG "-" and "+" buttons simultaneously.

(4) Operate the tracking adjustment (press the TV PROG buttons during playback) and set for maximum playback FM waveform.

(5) By operating the TV PROG button,vary the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape as shown in Fig.1-7-1.

(6) When the FM waveform does not remain flat during this process,first slightly loosen the set screw located at the bottom of the guide rollers.Using the guide roller adjustment tool (Roller driver) ,adjust the supply and take-up guide rollers (refer to Fig.1-7-2) to obtain the correct waveform as indicated in Fig.1-7-3.

(7) By pressing the TV PROG buttons several times,vary the FM waveform output from maximum to minimum (and vice versa) gradually,and confirm that the variation proceeds in flat shape, as shown in Fig.1-7-3.

(8) Next playback the EP or LP stairstep portion of the alignment tape [MHP-L, MHPE-L] and adjust the tracking control from maximum to minimum the FM waveform,confirm that FM waveform variation is always flat.

(9) Record the signal and play it back in both of the SP and EP, LP mode,confirm that the FM waveform is flat in both mode.

(10) After adjustments,tighten the set screw of the guide rollers.

(11) Confirm that the tape wrinking does not occur at the roller upper or lower limits as indicated in Fig.1-7-4.

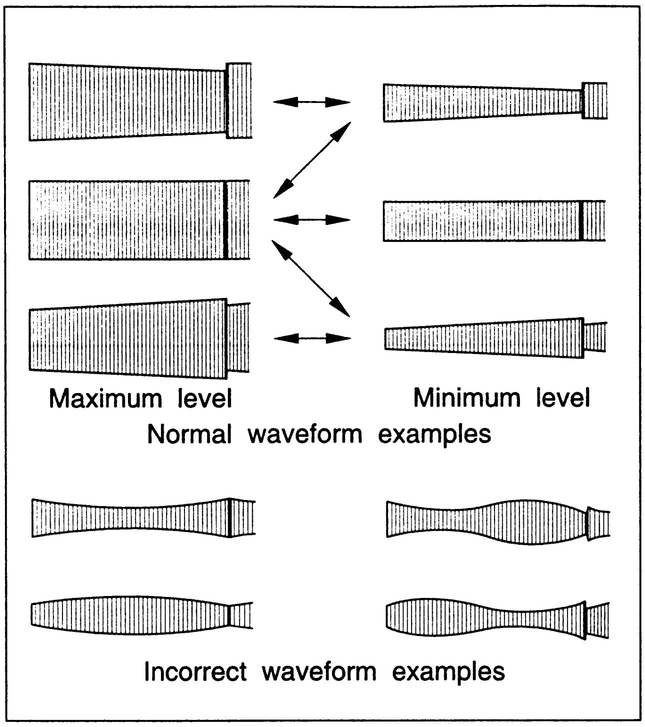


Fig. 1-7-1

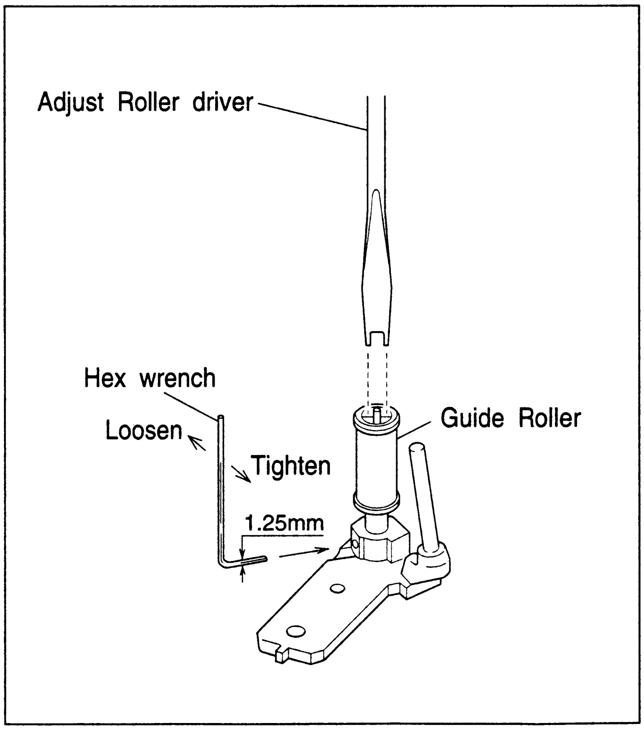


Fig. 1-7-2

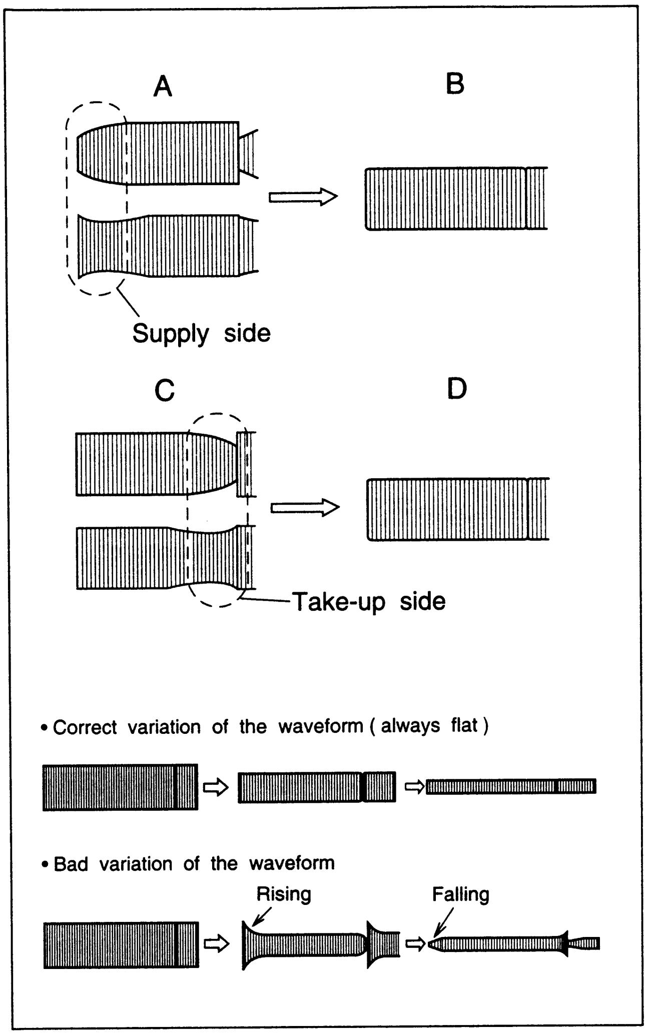
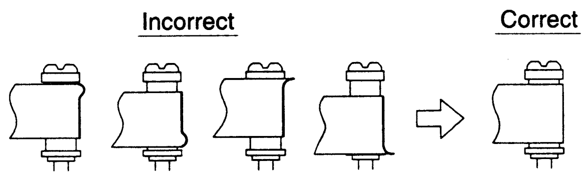
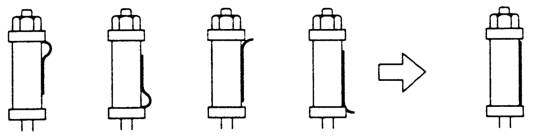

A
B
Supply side
C
D
Take-up side
• Correct variation of the waveform (always flat)
• Bad variation of the waveform
Rising
Falling

Fig. 1-7-3


Incorrect
Correct

(a) Guide Roller



(b) Guide Pole

Fig. 1-7-4

1.7.2 A/C head height & azimuth

NOTE :
- *Temporarily set A/C head height as indicated in Fig. 1-5-4.*
- *Use spare tape to check the transport and confirm the tape is not scratched or damaged.*

1. Tilt

(1) Use spare tape and set for playback.
(2) Turn screw (3) clockwise to where the tape curls just slightly at the TU guide pole bottom flange as shown in Fig.1-7-5.
(3) Then slowly turn screw (3) counterclockwise to where the curling ceases.

2. Height

(1) Connect CH-1 of a dual trace oscilloscope to Audio Out.
(2) Connect CH-2 to CTL PULSE of the Main board assembly and use the ALT mode.
(3) Playback the SP stairstep portion of the alignment tape [MHP, MHPE].
(4) Adjust screws (1),(2) and (3) for maximum audio output and control pulse level.

3. Azimuth

(1) Connect the oscilloscope to Audio Out.
(2) Playback the SP stairstep portion of the alignment tape [MHP, MHPE].
(3) Adjust screw (2) so that the audio output is both maximum and with minimum fluctuation.

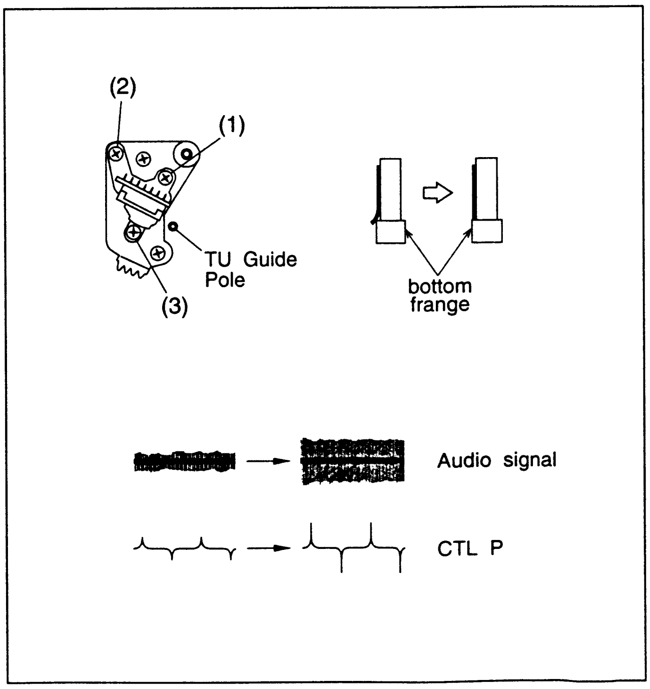

(2)
(1)
TU Guide Pole
(3)
bottom frange
Audio signal
CTL P

Fig. 1-7-5

1.7.3 A/C head phase(X-value)

(1) Connect the oscilloscope to PB FM on the MAIN board.Use D.FF on the MAIN board as a trigger.
(2) Playback the SP stairstep portion of the alignment tape [MHP, MHPE].
(3) Set the neutral manual tracking position by pressing the **///** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.
(4) If adjustment is required,slightly loosen screws (4) and (5). Set A/C head positioning tool on the A/C head adjusting boss as indicated in Fig.1-7-6.
(5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig.1-7-7.
(6) Tighten screw (5). Remove the tool and tighten screw (4).
(7) Eject the SP alighnment tape [MHP, MHPE] and then re-insert the EP or LP alignment tape [MHP-L, MHPE-L].
(8) Playback the EP or LP stairstep portion of the alignment tape [MHP-L, MHPE-L].
(9) Set the neutral manual tracking position by pressing the **///** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.
(10) Confirm maximum playback FM waveform output level as shown in Fig.1-7-7.
(11) If not maximum,slightly loosen the screws (4) and (5). Use the tool and adjust the head position for the nearest maximum point. Then tighten screws (4) and (5).

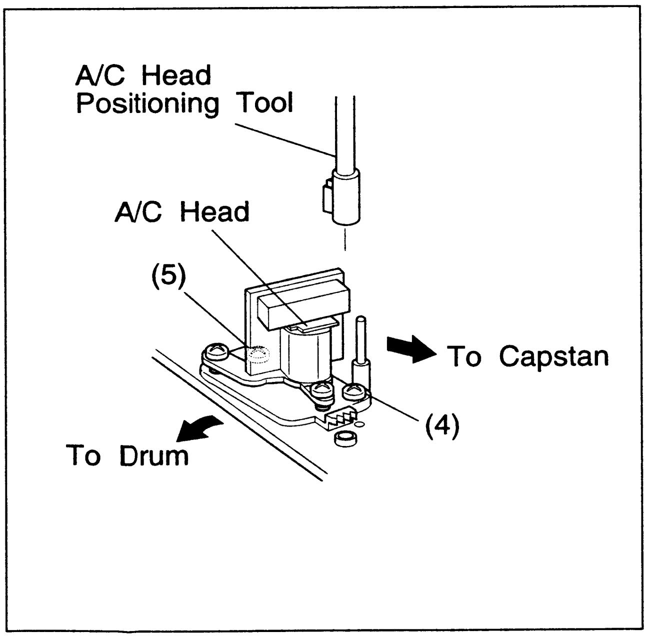


Fig. 1-7-6

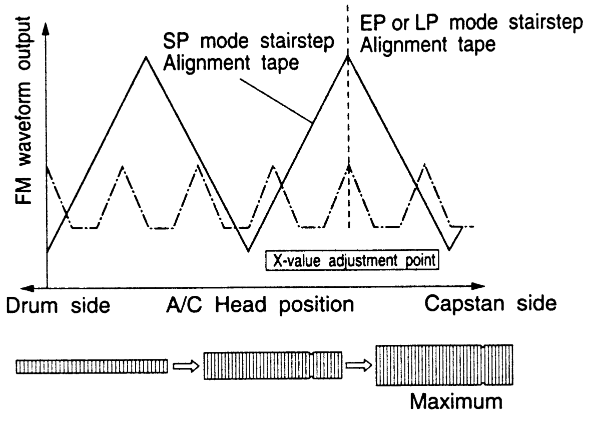


Fig. 1-7-7

1.7.4 Tension pole position

(1) Set for playback mode using MECHANISM SERVICE MODE.
(2) Turn the adjust pin so that the tension arm assembly does not touch ϕ2.5 pole on the outside.
(3) After adjustment,use the back tension cassette gauge and set for the playback mode.
(4) Confirm reading of 29 to 46 g-cm.

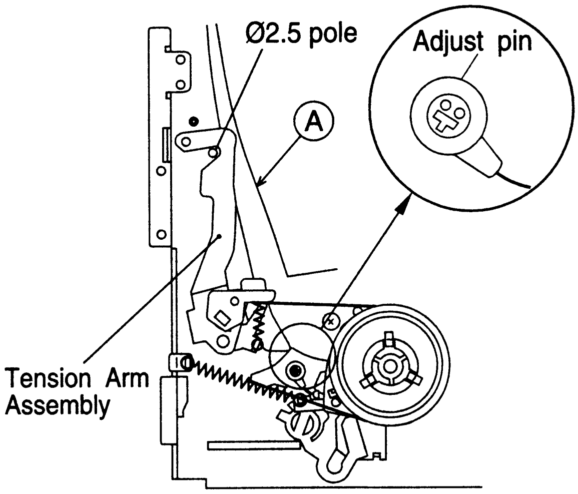


Fig. 1-7-8

SECTION 2
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

The mechanism assembly number is composed of several model numbers and the code of the country in which the deck is made in.
The parts of the mechanism assembly differ between the mechanism assembly number, and are not compatible.
Therefore it is necessary to check the mechanism assembly number, and replace parts according to the parts lists which give the corresponding parts.

The following describes how to check the mechanism assembly number.

1. To check the model number.

Read from the three digits from the left of the 9-digit number printed at the part shown in Fig. 2-1 or labeled on a sticker.
Add these three numbers at the *** of PMC00*** to obtain the model number
Consequently, the model number is PMC0011.

Example)
Printed number 11A7011427 → Assembly number PMC0011A

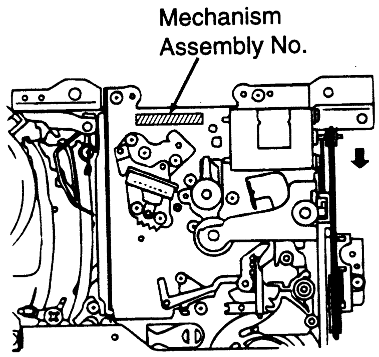

Mechanism
Assembly No.

Fig 2-1

2. To check the production country code

Read the RATING LABEL on the unit to check where it was made in.
If MADE IN JAPAN or MADE IN P.R.C., the production country code is E.
If MADE IN MALAYSIA, the production country code is M.

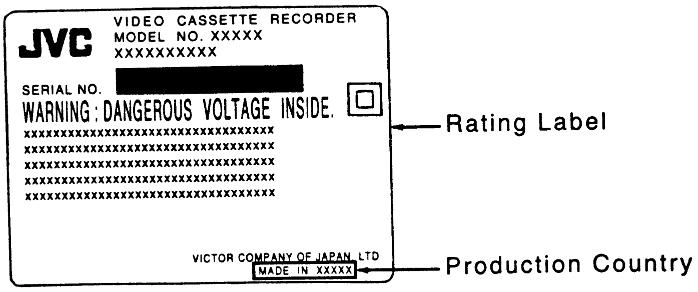

JVC
VIDEO CASSETTE RECORDER
MODEL NO. XXXXX
XXXXXXXXXX
SERIAL NO.
WARNING: DANGEROUS VOLTAGE INSIDE.
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
VICTOR COMPANY OF JAPAN, LTD
MADE IN XXXXX
Rating Label
Production Country

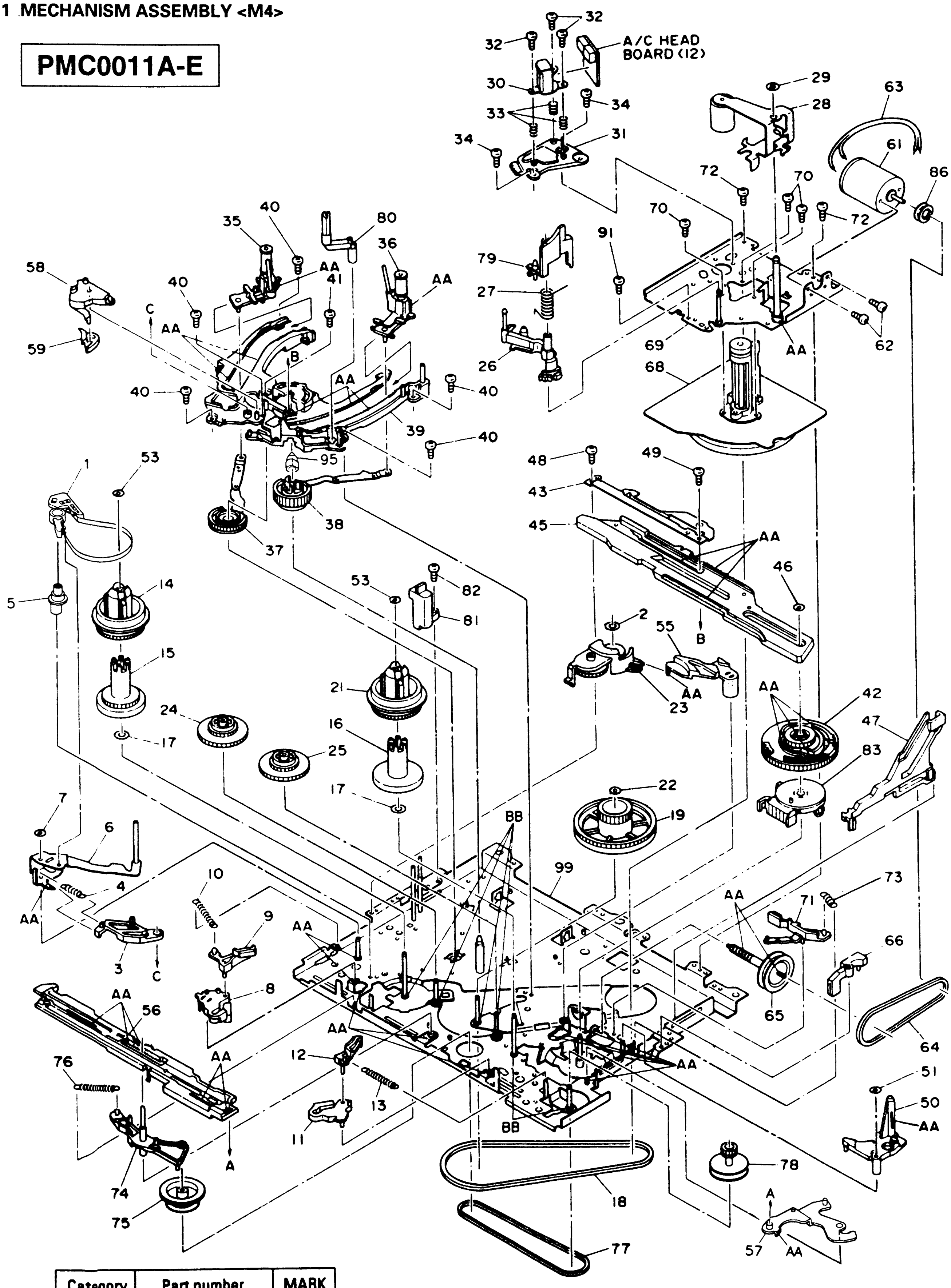
Fig.2-2

3. To check the mechanism assembly number

The mechanism assembly number can be obtained by adding the model number checked at 1, and the production country code checked at 2.
If the model number is PMC0011A and the production country mode is E, the mechanism assembly number is PMC0011A-E.
For the parts number of the parts making up PMC0011A-E, refer to the parts lists on the following pages.

2.1 MECHANISM ASSEMBLY <M4>

PMC0011A-E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A/C HEAD BOARD (12)
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AA
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36
58
40
AA
41
AA
C
AA
B
59
79
27
26
40
AA
40
39
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48
49
43
45
AA
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B
1
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95
38
37
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81
2
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AA
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17
83
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19
7
6
BB
99
AA
71
73
10
4
AA
9
AA
66
3
C
8
65
AA
56
AA
64
AA
76
12
13
AA
51
50
AA
11
BB
78
74
A
18
75
A
57
AA
77

Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

PMC0011A-E

* * *

MECHANISM ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LP40006-001B	TENSION BAND ASSEMBLY
	2	PQM30017-34	SLIT WASHER
	3	PQ35012-1-5	TENSION ARM LEVER
	4	PQM30001-385109	TENSION SPRING
	5	LP30103-001A	ADJUST PIN
	6	PQ46303B-8	TENSION ARM ASSEMBLY
	7	PQM30017-47	SLIT WASHER
	8	PQ46305B-3	MAIN BRAKE ASSEMBLY (SUPPLY)
	9	PQ46306A-6	SUB BRAKE ASSEMBLY (SUPPLY)
	10	PQM30001-393	TENSION SPRING
	11	PQ46308A-5	MAIN BRAKE ASSEMBLY (TAKE UP)
	12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
	13	PQM30001-389102	TENSION SPRING
	14	PQ46561B	REEL DISK ASSEMBLY (SUPPLY)
	15	PQ35436	SLIT DISK (SUPPLY)
	16	PQ35437	SLIT DISK (TAKE UP)
	17	PQM30018-76	SPACER,X2
	18	PQM30003-38	BELT (CAPSTAN)
	19	PQ46497B-2	PULLEY
	21	PQ46562B	REEL ASSEMBLY (TAKE UP)
	22	PQM30018-69	SPACER
	23	PQ46312C-15	IDLER ARM ASSEMBLY
	24	PQ46316D	CLUTCH UNIT (SUPPLY)
	25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
	26	PQ46325D	GUIDE ARM ASSEMBLY
	27	PQ46326-2	TORSION SPRING
	28	PQ46327A-4	PINCH ROLLER ARM ASSEMBLY
	29	PQM30017-24	SLIT WASHER,P LEVER
	30	PEHE0182	AUDIO CONTROL HEAD
	31	PQ35206-1-3	HEAD BASE
	32	PQ43687A	SCREW,X3
	33	PQM30002-192	COMPRESSION SPRING,X3
	34	SDSP2604Z	SCREW,X2
	35	PQ46595B-5	POLE BASE ASSEMBLY (SUPPLY)
	36	PQ46331C	POLE BASE ASSEMBLY (TAKE UP)
	37	PQ46332B-3	LOADING ARM ASSEMBLY (SUPPLY)
	38	PQ46337C	LOADING ARM ASSEMBLY (TAKE UP)
	39	PQ11657-1-9	GUIDE RAIL
	40	SPST2608Z	SCREW,X5
	41	SDST2612Z	SCREW
	42	LP20003-001A	CONTROL CAM
	43	PQ35138-3	CONTROL BRACKET
	45	LP10004-001B	CONTROL PLATE
	46	PQM30017-8	SLIT WASHER
	47	PQ21685-2-10	PINCH PLATE
	48	SPST2606Z	SCREW
	49	SPSF2608M	SCREW
	50	PQ46342B-10	LEVER ASSEMBLY
	51	PQM30017-8	SLIT WASHER
	53	PQM30017-47	SLIT WASHER,X2
	55	PQ35026-1-7	IDLER LEVER
	56	PQ11659-1-11	SLIDE PLATE
	57	LP40014-001A	CHANGE LEVER ASSEMBLY
	58	PQ21686-1-3	TAKE UP LEVER
	59	PQ46345-1-2	TAKE UP HEAD
⚠	61	PU60628-3-2	LOADING MOTOR
	62	SPSP3003Z	SCREW,X2
	63	PW30101-80AJ632	WIRE
	64	LP30005-002A	BELT
	65	PQ46395B	WORM GEAR ASSEMBLY
	66	PQ21699-1-2	WORM BEARING
⚠	68	PU61487-2-3	CAPSTAN MOTOR
	69	PQ46347F-16	SUB DECK ASSEMBLY
	70	SPSG2608Z	SCREW,X3
	71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
	72	SPST2606Z	SCREW,X2
	73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
	74	PQ46353A-2	CHANGE ARM ASSEMBLY
	75	PQ46354	CHANGE GEAR
	76	PQM30001-386	TENSION SPRING
	77	PQM30003-40	BELT
	78	LP40008-001A	CASSETTE GEAR
	79	PQ35030-1-5	LID GUIDE
	80	LP20032-001A	LED PRISM
	81	PEHE0237	FULL ERASE HEAD
	82	SDST2610Z	SCREW
	83	PU61432-1-1	ROTARY ENCODER
	86	PQ43546-1-2	MOTOR PULLEY
	91	SDSP2604Z	SCREW
	95	PQ46767-1-2	GUIDE CAP
	99	PQ21680M-23	MAIN DECK ASSEMBLY

* * *

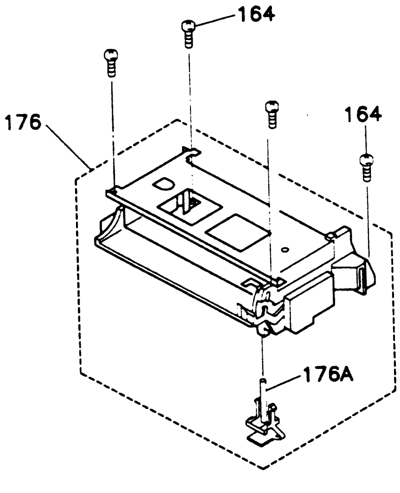
AUDIO/CONTROL HEAD BOARD ASSY <12>

PW1	PB10916A-04	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

* * *

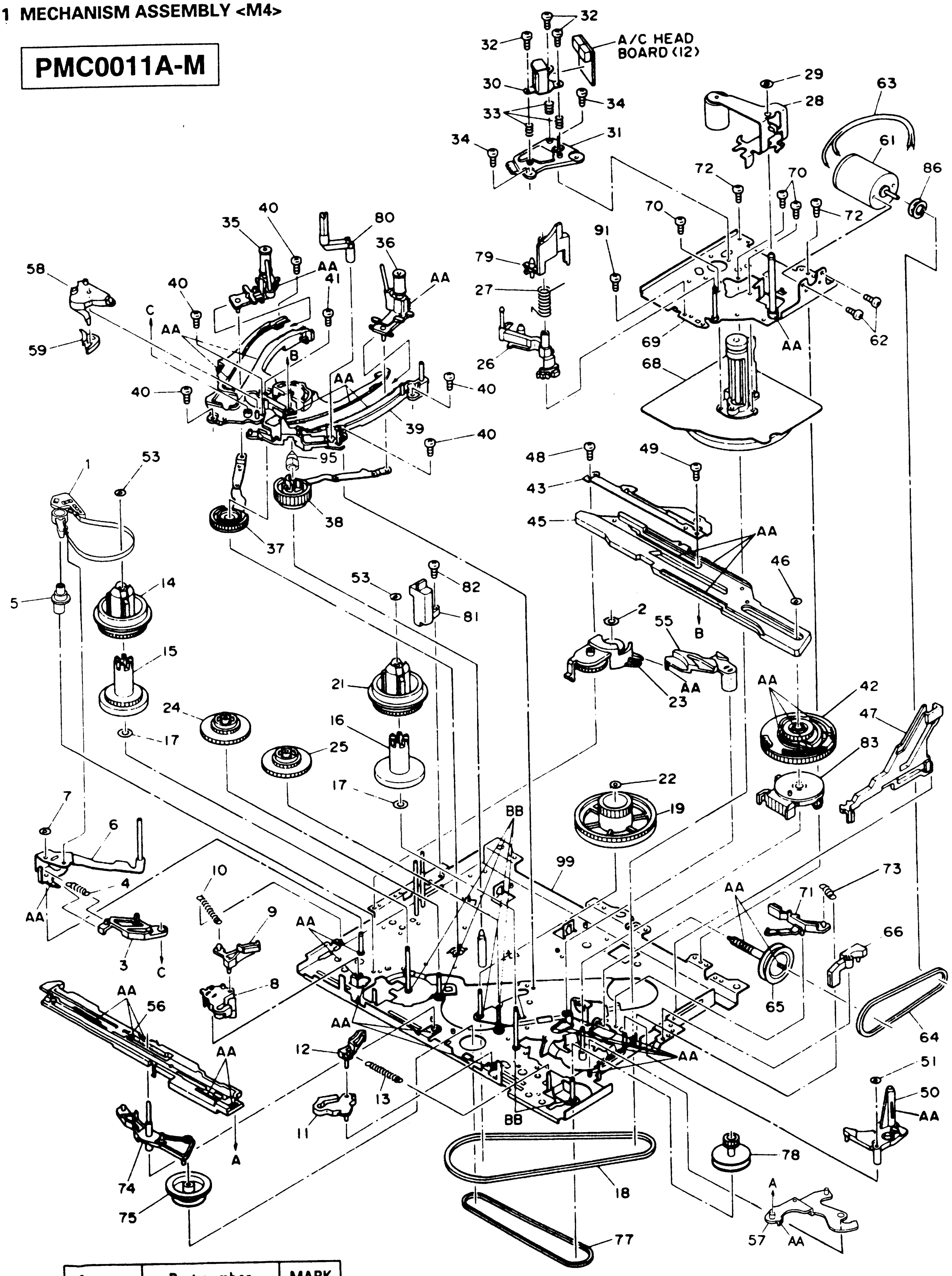
- CASSETTE HOUSING -

164	SPST2606Z	SCREW, ×2 CASSETTE HOUSING
176	PU29724E	CASSETTE HOUSING ASSY
176A	PQ46359	CASSETTE SWITCH PIN



2.1 MECHANISM ASSEMBLY <M4>

PMC0011A-M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A/C HEAD BOARD (12)
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Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

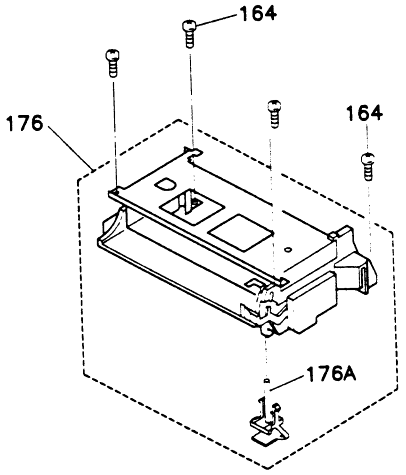
NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

PMC0011A-M

****

MECHANISM ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LP40006-001B	TENSION BAND ASSEMBLY
	2	PQM30017-34	SLIT WASHER
	3	PQ35012-1-5	TENSION ARM LEVER
	4	PQM30001-385109	TENSION SPRING
	5	LP30103-001A	ADJUST PIN
	6	PQ46303A-8	TENSION ARM ASSEMBLY
	7	PQM30017-47	SLIT WASHER
	8	PQ46305B-3	MAIN BRAKE ASSEMBLY (SUPPLY)
	9	PQ46306A-6	SUB BRAKE ASSEMBLY (SUPPLY)
	10	PQM30001-393	TENSION SPRING
	11	PQ46308A-5	MAIN BRAKE ASSEMBLY (TAKE UP)
	12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
	13	PQM30001-389102	TENSION SPRING
	14	PQ46561B	REEL DISK ASSEMBLY (SUPPLY)
	15	PQ35436	SLIT DISK (SUPPLY)
	16	PQ35437	SLIT DISK (TAKE UP)
	17	PQM30018-79	SPACER,X2
	18	PQM30003-38	BELT (CAPSTAN)
	19	PQ46497B-2	PULLEY
	21	PQ46562B	REEL ASSEMBLY (TAKE UP)
	22	PQM30018-69	SPACER
	23	PQ46312C-15	IDLER ARM ASSEMBLY
	24	PQ46316C-6	CLUTCH UNIT (SUPPLY)
	25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
	26	PQ46325C-9	GUIDE ARM ASSEMBLY
	27	PQ46326-2	TORSION SPRING
	28	PQ46327A-4	PINCH ROLLER ARM ASSEMBLY
	29	PQM30017-24	SLIT WASHER,P LEVER
	30	PEHE0182	AUDIO CONTROL HEAD
	31	PQ35206-1-3	HEAD BASE
	32	PQ43687A	SCREW,X3
	33	PQM30002-192	COMPRESSION SPRING,X3
	34	SDSP2604Z	SCREW,X2
	35	PQ46595B-5	POLE BASE ASSEMBLY (SUPPLY)
	36	PQ46331C	POLE BASE ASSEMBLY (TAKE UP)
	37	PQ46332B-3	LOADING ARM ASSEMBLY (SUPPLY)
	38	PQ46337C	LOADING ARM ASSEMBLY (TAKE UP)
	39	PQ11657-1-9	GUIDE RAIL
	40	SPST2608Z	SCREW,X5



# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	41	SDST2612Z	SCREW
	42	LP20003-001A	CONTROL CAM
	43	PQ35138-1-2	CONTROL BRACKET
	45	LP10004-001B	CONTROL PLATE
	46	PQM30017-8	SLIT WASHER
	47	PQ21685-2-10	PINCH PLATE
	48	SPST2606Z	SCREW
	49	SPSF2608M	SCREW
	50	PQ46342D-10	LEVER ASSEMBLY
	51	PQM30017-8	SLIT WASHER
	53	PQM30017-47	SLIT WASHER,X2
	55	PQ35026-1-7	IDLER LEVER
	56	PQ11659-1-14	SLIDE PLATE
	57	LP40014-001A	CHANGE LEVER ASSEMBLY
	58	PQ21686-1-3	TAKE UP LEVER
	59	PQ46345-1-2	TAKE UP HEAD
⚠	61	PU60628-3-2	LOADING MOTOR
	62	SPSP3003Z	SCREW,X2
	63	PW30101-80AJ632	WIRE
	64	LP30005-002A	BELT
	65	PQ46395B	WORM GEAR ASSEMBLY
	66	PQ21699-1-2	WORM BEARING
⚠	68	PU61487-2-3	CAPSTAN MOTOR
	69	PQ46347D	SUB DECK ASSEMBLY
	70	SPSG2608Z	SCREW,X3
	71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
	72	SPST2606Z	SCREW,X2
	73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
	74	PQ46353A-2	CHANGE ARM ASSEMBLY
	75	PQ46354	CHANGE GEAR
	77	PQM30003-40	BELT
	78	LP40008-001A	CASSETTE GEAR
	79	PQ35030-1-5	LID GUIDE
	80	LP20032-001A	LED PRISM
	81	PEHE0237	FULL ERASE HEAD
	82	SDST2610Z	SCREW
	83	PU61432-1-1	ROTARY ENCODER
	86	PQ43546-1-2	MOTOR PULLEY
	91	SDSP2604Z	SCREW
	95	PQ46767-1-2	GUIDE CAP
	99	PQ21680L-23	MAIN DECK ASSEMBLY

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AUDIO/CONTROL HEAD BOARD ASSY <12>

REF No.	PART No.	PART NAME, DESCRIPTION
PW1	PB10916A-04	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

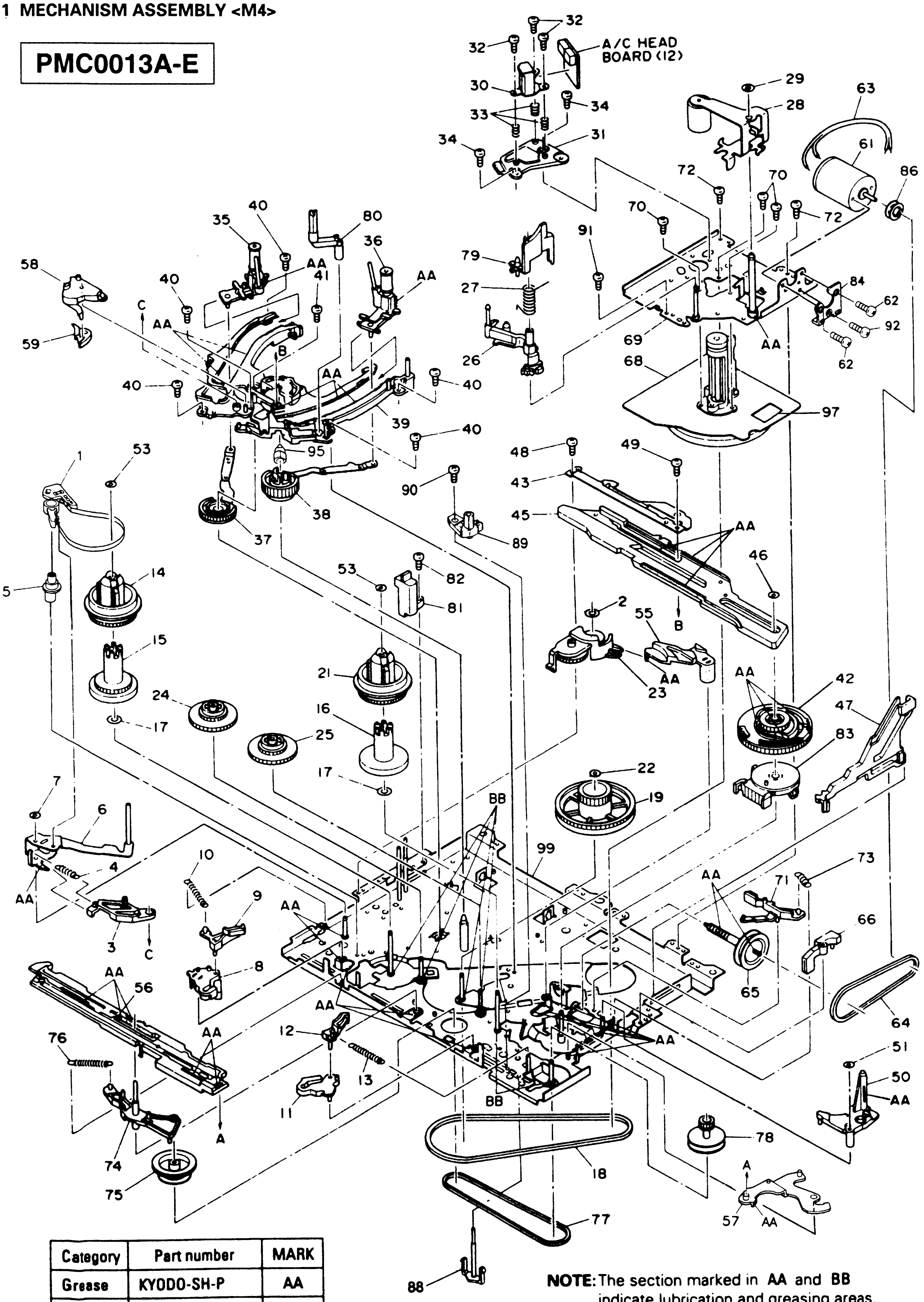
****

- CASSETTE HOUSING -

REF No.	PART No.	PART NAME, DESCRIPTION
164	SPST2606Z	SCREW, ×2 CASSETTE HOUSING
176	PU29724E	CASSETTE HOUSING ASSY
176A	PQ46359	CASSETTE SWITCH PIN

2.1 MECHANISM ASSEMBLY <M4>

PMC0013A-E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A/C HEAD BOARD (12)
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88

Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

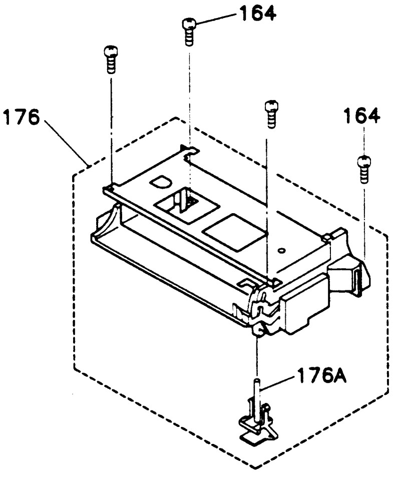
PMC0013A-E

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

MECHANISM ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LP40006-001B	TENSION BAND ASSEMBLY
	2	PQM30017-34	SLIT WASHER
	3	PQ35012-1-5	TENSION ARM LEVER
	4	PQM30001-385109	TENSION SPRING
	5	LP30103-001A	ADJUST PIN
	6	PQ46303B-8	TENSION ARM ASSEMBLY
	7	PQM30017-47	SLIT WASHER
	8	PQ46305B-3	MAIN BRAKE ASSEMBLY (SUPPLY)
	9	PQ46306A-6	SUB BRAKE ASSEMBLY (SUPPLY)
	10	PQM30001-393	TENSION SPRING
	11	PQ46308A-5	MAIN BRAKE ASSEMBLY (TAKE UP)
	12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
	13	PQM30001-389102	TENSION SPRING
	14	PQ46561B	REEL DISK ASSEMBLY (SUPPLY)
	15	PQ35436	SLIT DISK (SUPPLY)
	16	PQ35437	SLIT DISK (TAKE UP)
	17	PQM30018-76	SPACER,X2
	18	PQM30003-38	BELT (CAPSTAN)
	19	PQ46497B-2	PULLEY
	21	PQ46562B	REEL ASSEMBLY (TAKE UP)
	22	PQM30018-69	SPACER
	23	PQ46312C-15	IDLER ARM ASSEMBLY
	24	PQ46316D	CLUTCH UNIT (SUPPLY)
	25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
	26	PQ46325D	GUIDE ARM ASSEMBLY
	27	PQ46326-2	TORSION SPRING
	28	PQ46327A-4	PINCH ROLLER ARM ASSEMBLY
	29	PQM30017-24	SLIT WASHER,P LEVER
	30	PEHE0182	AUDIO CONTROL HEAD
	31	PQ35206-1-3	HEAD BASE
	32	PQ43687A	SCREW,X3
	33	PQM30002-192	COMPRESSION SPRING,X3
	34	SDSP2604Z	SCREW,X2
	35	PQ46330C-10	POLE BASE ASSEMBLY (SUPPLY)
	36	PQ46331D	POLE BASE ASSEMBLY (TAKE UP)
	37	PQ46332B-3	LOADING ARM ASSEMBLY (SUPPLY)
	38	PQ46337C	LOADING ARM ASSEMBLY (TAKE UP)
	39	PQ11657-1-9	GUIDE RAIL
	40	SPST2608Z	SCREW,X5
	41	SDST2612Z	SCREW
	42	LP20003-001A	CONTROL CAM
	43	PQ35138-3	CONTROL BRACKET
	45	LP10004-001B	CONTROL PLATE
	46	PQM30017-8	SLIT WASHER
	47	PQ21685-2-10	PINCH PLATE
	48	SPST2606Z	SCREW
	49	SPSF2608M	SCREW
	50	PQ46342B-10	LEVER ASSEMBLY
	51	PQM30017-8	SLIT WASHER
	53	PQM30017-47	SLIT WASHER,X2
	55	PQ35026-1-7	IDLER LEVER
	56	PQ11659-1-11	SLIDE PLATE
	57	LP40014-001A	CHANGE LEVER ASSEMBLY
	58	PQ21686-1-3	TAKE UP LEVER
	59	PQ46345-1-2	TAKE UP HEAD
⚠	61	PU60628-3-2	LOADING MOTOR
	62	SPSP3005Z	SCREW,X2
	63	PW30101-80AJ632	WIRE
	64	LP30005-002A	BELT
	65	PQ46395B	WORM GEAR ASSEMBLY
	66	PQ21699-1-2	WORM BEARING
⚠	68	PU61487-2-3	CAPSTAN MOTOR
	69	PQ46347E-16	SUB DECK ASSEMBLY
	70	SPSG2608Z	SCREW,X3
	71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
	72	SPST2606Z	SCREW,X2
	73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
	74	PQ46353A-2	CHANGE ARM ASSEMBLY
	75	PQ46354	CHANGE GEAR
	76	PQM30001-386	TENSION SPRING
	77	PQM30003-40	BELT
	78	LP40008-001A	CASSETTE GEAR
	79	PQ35030-1-5	LID GUIDE
	80	LP20032-001A	LED PRISM
	81	PEHE0237	FULL ERASE HEAD
	82	SDST2610Z	SCREW
	83	PU61432-1-1	ROTARY ENCODER
	84	PQ46568-1-2	MOTOR GUIDE
	86	PQ43546-1-2	MOTOR PULLEY
	88	PQ46473-1-1	S-SW PIN
	89	PQ46474-1-2	S-SW HOLDER
	90	SPST2606Z	SCREW
	91	SDSP2604Z	SCREW
	92	SDSP2604Z	SCREW
	95	PQ46767-1-2	GUIDE CAP
	97	LP30002-013A	SPACER
	99	PQ21680P-23	MAIN DECK ASSEMBLY



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AUDIO/CONTROL HEAD BOARD ASSY <12>

REF No.	PART No.	PART NAME, DESCRIPTION
PW1	PB10916A-04	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

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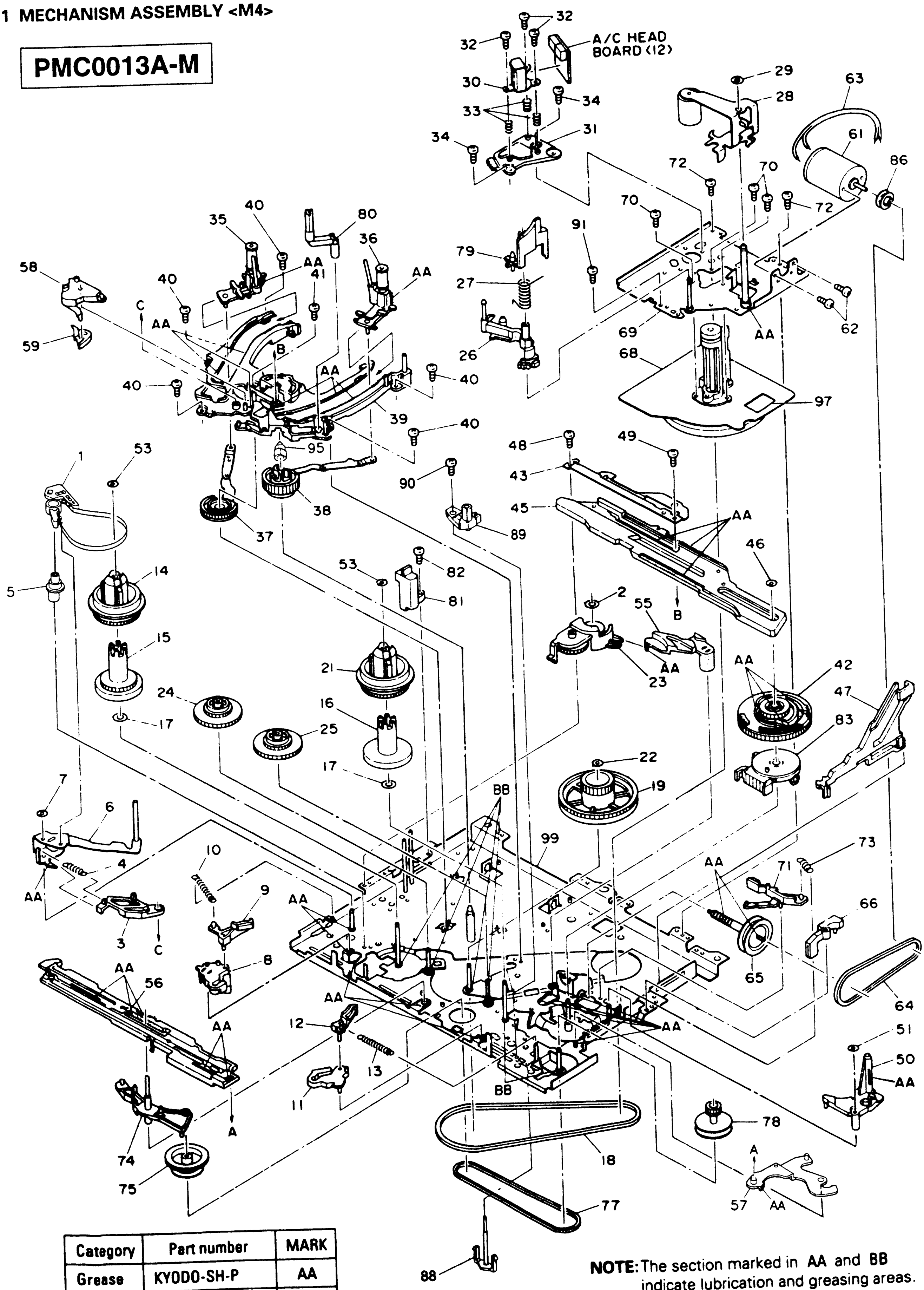
– CASSETTE HOUSING –

REF No.	PART No.	PART NAME, DESCRIPTION
164	SPST2606Z	SCREW, ×2 CASSETTE HOUSING
176	PU29724F	CASSETTE HOUSING ASSY
176A	PQ46359	CASSETTE SWITCH PIN

2.1 MECHANISM ASSEMBLY <M4>

PMC0013A-M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A/C HEAD BOARD (12)
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AA
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Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

PMC0013A-M

MECHANISM ASSEMBLY <M4>

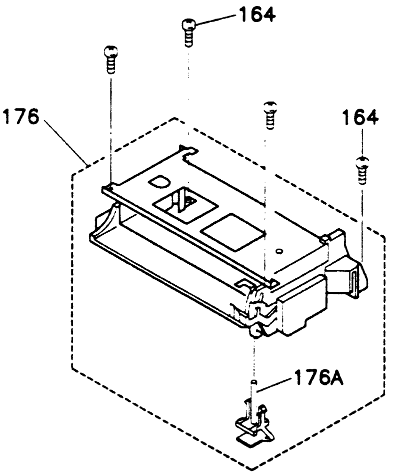
# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LP40006-001B	TENSION BAND ASSEMBLY
	2	PQM30017-34	SLIT WASHER
	3	PQ35012-1-5	TENSION ARM LEVER
	4	PQM30001-385109	TENSION SPRING
	5	LP30103-001A	ADJUST PIN
	6	PQ46303A-8	TENSION ARM ASSEMBLY
	7	PQM30017-47	SLIT WASHER
	8	PQ46305B-3	MAIN BRAKE ASSEMBLY (SUPPLY)
	9	PQ46306A-6	SUB BRAKE ASSEMBLY (SUPPLY)
	10	PQM30001-393	TENSION SPRING
	11	PQ46308A-5	MAIN BRAKE ASSEMBLY (TAKE UP)
	12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
	13	PQM30001-389102	TENSION SPRING
	14	PQ46561B	REEL DISK ASSEMBLY (SUPPLY)
	15	PQ35436	SLIT DISK (SUPPLY)
	16	PQ35437	SLIT DISK (TAKE UP)
	17	PQM30018-79	SPACER,X2
	18	PQM30003-38	BELT (CAPSTAN)
	19	PQ46497B-2	PULLEY
	21	PQ46562B	REEL ASSEMBLY (TAKE UP)
	22	PQM30018-69	SPACER
	23	PQ46312C-15	IDLER ARM ASSEMBLY
	24	PQ46316C-6	CLUTCH UNIT (SUPPLY)
	25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
	26	PQ46325C-9	GUIDE ARM ASSEMBLY
	27	PQ46326-2	TORSION SPRING
	28	PQ46327A-4	PINCH ROLLER ARM ASSEMBLY
	29	PQM30017-24	SLIT WASHER,P LEVER
	30	PEHE0182	AUDIO CONTROL HEAD
	31	PQ35206-1-3	HEAD BASE
	32	PQ43687A	SCREW,X3
	33	PQM30002-192	COMPRESSION SPRING,X3
	34	SDSP2604Z	SCREW,X2
	35	PQ46330C-10	POLE BASE ASSEMBLY (SUPPLY)
	36	PQ46331D	POLE BASE ASSEMBLY (TAKE UP)
	37	PQ46332B-3	LOADING ARM ASSEMBLY (SUPPLY)
	38	PQ46337C	LOADING ARM ASSEMBLY (TAKE UP)
	39	PQ11657-1-9	GUIDE RAIL
	40	SPST2608Z	SCREW,X5
	41	SDST2612Z	SCREW
	42	LP20003-001A	CONTROL CAM
	43	PQ35138-1-2	CONTROL BRACKET
	45	LP10004-001B	CONTROL PLATE
	46	PQM30017-8	SLIT WASHER
	47	PQ21685-2-10	PINCH PLATE
	48	SPST2606Z	SCREW
	49	SPSF2608M	SCREW
	50	PQ46342D-10	LEVER ASSEMBLY
	51	PQM30017-8	SLIT WASHER
	53	PQM30017-47	SLIT WASHER,X2
	55	PQ35026-1-7	IDLER LEVER
	56	PQ11659-1-14	SLIDE PLATE
	57	LP40014-001A	CHANGE LEVER ASSEMBLY
	58	PQ21686-1-3	TAKE UP LEVER
	59	PQ46345-1-2	TAKE UP HEAD
⚠	61	PU60628-3-2	LOADING MOTOR
	62	SPSP3003Z	SCREW,X2
	63	PW30101-80AJ632	WIRE
	64	LP30005-002A	BELT
	65	PQ46395B	WORM GEAR ASSEMBLY
	66	PQ21699-1-2	WORM BEARING
⚠	68	PU61487-2-3	CAPSTAN MOTOR
	69	PQ46347D	SUB DECK ASSEMBLY
	70	SPSG2608Z	SCREW,X3
	71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
	72	SPST2606Z	SCREW,X2
	73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
	74	PQ46353A-2	CHANGE ARM ASSEMBLY
	75	PQ46354	CHANGE GEAR
	77	PQM30003-40	BELT
	78	LP40008-001A	CASSETTE GEAR
	79	PQ35030-1-5	LID GUIDE
	80	LP20032-001A	LED PRISM
	81	PEHE0237	FULL ERASE HEAD
	82	SDST2610Z	SCREW
	83	PU61432-1-1	ROTARY ENCODER
	86	PQ43546-1-2	MOTOR PULLEY
	88	PQ46473-1-1	S-SW PIN
	89	PQ46474-1-2	S-SW HOLDER
	90	SPST2606Z	SCREW
	91	SDSP2604Z	SCREW
	95	PQ46767-1-2	GUIDE CAP
	97	LP30002-13A	SPACER
	99	PQ21680N-23	MAIN DECK ASSEMBLY

AUDIO/CONTROL HEAD BOARD ASSY <12>

PW1	PB10916A-04	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

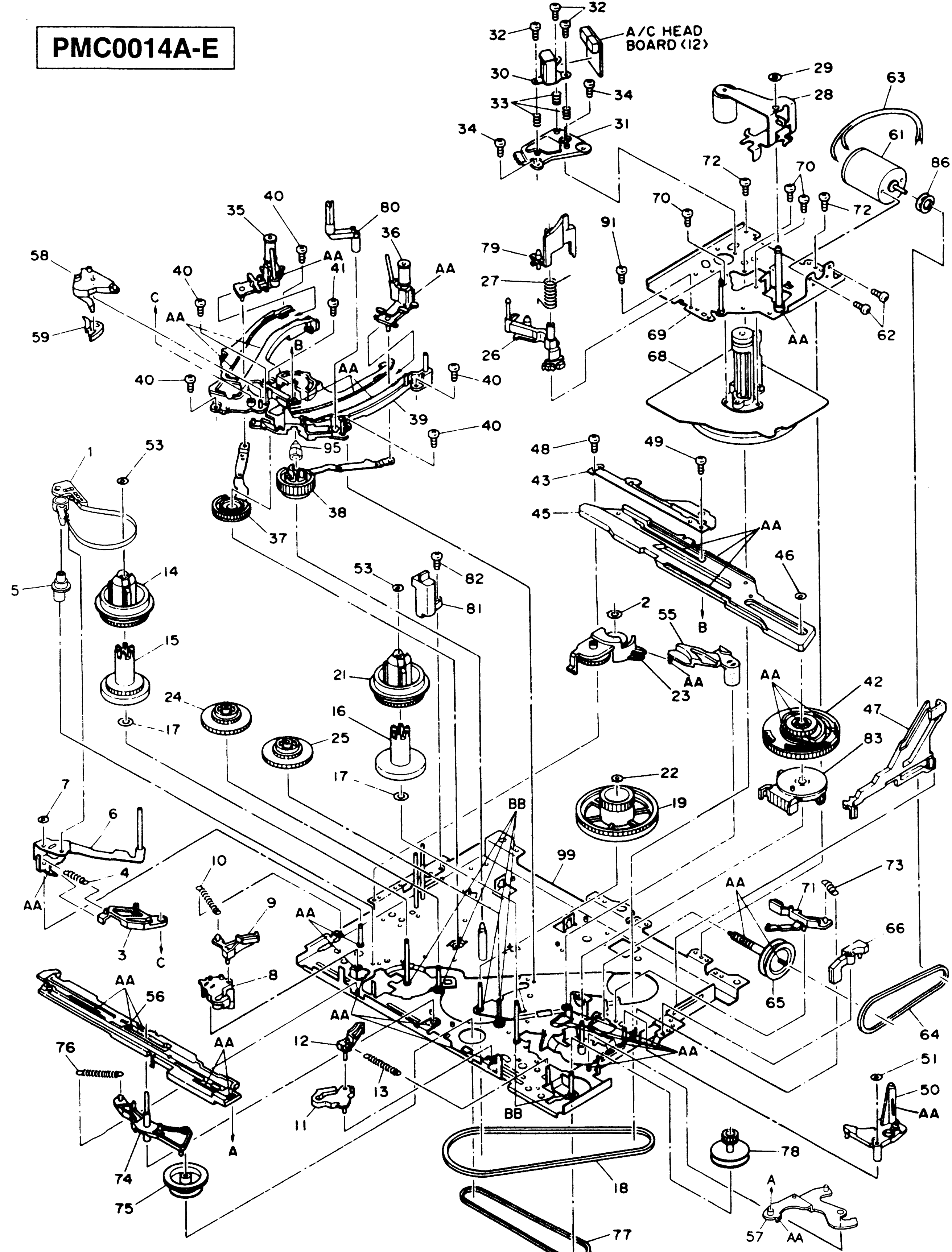
- CASSETTE HOUSING -

164	SPST2606Z	SCREW, ×2 CASSETTE HOUSING
176	PU29724F	CASSETTE HOUSING ASSY
176A	PQ46359	CASSETTE SWITCH PIN



2.1 MECHANISM ASSEMBLY <M4>

PMC0014A-E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AA

Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

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MECHANISM ASSEMBLY <M4>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	LP40006-001B	TENSION BAND ASSEMBLY
2	PQM30017-34	SLIT WASHER
3	PQ35012-1-5	TENSION ARM LEVER
4	PQM30001-385109	TENSION SPRING
5	LP30103-001A	ADJUST PIN
6	PQ46303B-8	TENSION ARM ASSEMBLY
7	PQM30017-47	SLIT WASHER
8	PQ46305B-3	MAIN BRAKE ASSEMBLY (SUPPLY)
9	PQ46306A-6	SUB BRAKE ASSEMBLY (SUPPLY)
10	PQM30001-393	TENSION SPRING
11	PQ46308A-5	MAIN BRAKE ASSEMBLY (TAKE UP)
12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
13	PQM30001-389102	TENSION SPRING
14	PQ46561B	REEL DISK ASSEMBLY (SUPPLY)
15	PQ35436	SLIT DISK (SUPPLY)
16	PQ35437	SLIT DISK (TAKE UP)
17	PQM30018-76	SPACER,X2
18	PQM30003-38	BELT (CAPSTAN)
19	PQ46497B-2	PULLEY
21	PQ46562B	REEL ASSEMBLY (TAKE UP)
22	PQM30018-69	SPACER
23	PQ46312C-15	IDLER ARM ASSEMBLY
24	PQ46316D	CLUTCH UNIT (SUPPLY)
25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
26	PQ46325D	GUIDE ARM ASSEMBLY
27	PQ46326-2	TORSION SPRING
28	PQ46327A-4	PINCH ROLLER ARM ASSEMBLY
29	PQM30017-24	SLIT WASHER,P LEVER
30	PEHE0182	AUDIO CONTROL HEAD
31	PQ35206-1-3	HEAD BASE
32	PQ43687A	SCREW,X3
33	PQM30002-192	COMPRESSION SPRING,X3
34	SDSP2604Z	SCREW,X2
35	PQ46595B-5	POLE BASE ASSEMBLY (SUPPLY)
36	PQ46331C	POLE BASE ASSEMBLY (TAKE UP)
37	PQ46332B-3	LOADING ARM ASSEMBLY (SUPPLY)
38	PQ46337C	LOADING ARM ASSEMBLY (TAKE UP)
39	PQ11657-1-9	GUIDE RAIL
40	SPST2608Z	SCREW,X5
41	SDST2612Z	SCREW
42	LP20003-001A	CONTROL CAM
43	PQ35138-3	CONTROL BRACKET
45	LP10004-001B	CONTROL PLATE
46	PQM30017-8	SLIT WASHER
47	PQ21685-2-10	PINCH PLATE
48	SPST2606Z	SCREW
49	SPSF2608M	SCREW
50	PQ46342B-10	LEVER ASSEMBLY
51	PQM30017-8	SLIT WASHER
53	PQM30017-47	SLIT WASHER,X2
55	PQ35026-1-7	IDLER LEVER
56	PQ11659-1-11	SLIDE PLATE
57	LP40014-001A	CHANGE LEVER ASSEMBLY
58	PQ21686-1-3	TAKE UP LEVER
59	PQ46345-1-2	TAKE UP HEAD
⚠ 61	PU60628-3-2	LOADING MOTOR
62	SPSP3003Z	SCREW,X2
63	PW30101-80AJ632	WIRE
64	LP30005-002A	BELT
65	PQ46395B	WORM GEAR ASSEMBLY
66	PQ21699-1-2	WORM BEARING
⚠ 68	PU61487-2-3	CAPSTAN MOTOR
69	PQ46347F-16	SUB DECK ASSEMBLY
70	SPSG2608Z	SCREW,X3
71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
72	SPST2606Z	SCREW,X2
73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
74	PQ46353A-2	CHANGE ARM ASSEMBLY
75	PQ46354	CHANGE GEAR
76	PQM30001-386	TENSION SPRING
77	PQM30003-40	BELT
78	LP40008-001A	CASSETTE GEAR
79	PQ35030-1-5	LID GUIDE
80	LP20032-001A	LED PRISM
81	PEHE0237	FULL ERASE HEAD
82	SDST2610Z	SCREW
83	PU61432-1-1	ROTARY ENCODER
86	PQ43546-1-2	MOTOR PULLEY
91	SDSP2604Z	SCREW
95	PQ46767-1-2	GUIDE CAP
99	PQ21680M-23	MAIN DECK ASSEMBLY

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AUDIO/CONTROL HEAD BOARD ASSY <12>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PW1	PB10916A-04	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

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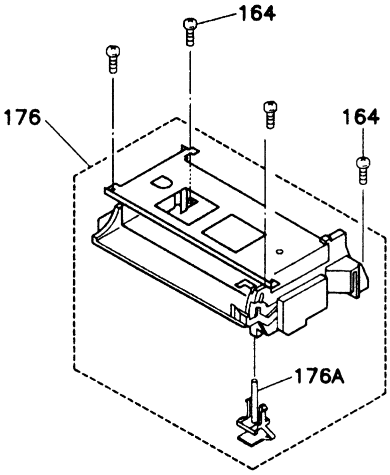
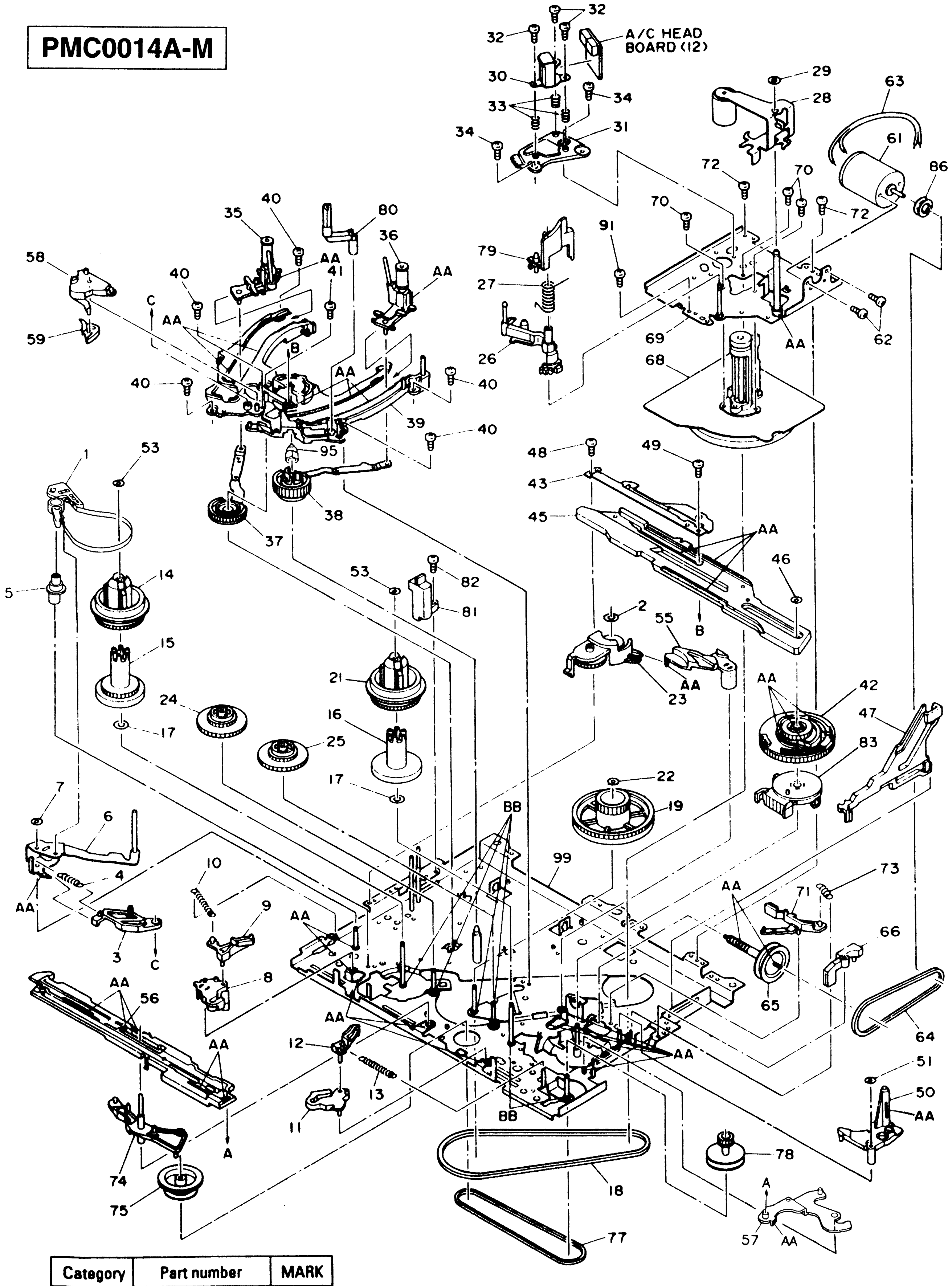
– CASSETTE HOUSING –

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
164	SPST2606Z	SCREW, ×2 CASSETTE HOUSING
176	PU29724F	CASSETTE HOUSING ASSY
176A	PQ46359	CASSETTE SWITCH PIN



2.1 MECHANISM ASSEMBLY <M4>

PMC0014A-M



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A/C HEAD BOARD (12)
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AA

Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

PMC0014A-M

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MECHANISM ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LP40006-001B	TENSION BAND ASSEMBLY
	2	PQM30017-34	SLIT WASHER
	3	PQ35012-1-5	TENSION ARM LEVER
	4	PQM30001-385109	TENSION SPRING
	5	LP30103-001A	ADJUST PIN
	6	PQ46303A-8	TENSION ARM ASSEMBLY
	7	PQM30017-47	SLIT WASHER
	8	PQ46305B-3	MAIN BRAKE ASSEMBLY (SUPPLY)
	9	PQ46306A-6	SUB BRAKE ASSEMBLY (SUPPLY)
	10	PQM30001-393	TENSION SPRING
	11	PQ46308A-5	MAIN BRAKE ASSEMBLY (TAKE UP)
	12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
	13	PQM30001-389102	TENSION SPRING
	14	PQ46561B	REEL DISK ASSEMBLY (SUPPLY)
	15	PQ35436	SLIT DISK (SUPPLY)
	16	PQ35437	SLIT DISK (TAKE UP)
	17	PQM30018-79	SPACER,X2
	18	PQM30003-38	BELT (CAPSTAN)
	19	PQ46497B-2	PULLEY
	21	PQ46562B	REEL ASSEMBLY (TAKE UP)
	22	PQM30018-69	SPACER
	23	PQ46312C-15	IDLER ARM ASSEMBLY
	24	PQ46316C-6	CLUTCH UNIT (SUPPLY)
	25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
	26	PQ46325C-9	GUIDE ARM ASSEMBLY
	27	PQ46326-2	TORSION SPRING
	28	PQ46327A-4	PINCH ROLLER ARM ASSEMBLY
	29	PQM30017-24	SLIT WASHER,P LEVER
	30	PEHE0182	AUDIO CONTROL HEAD
	31	PQ35206-1-3	HEAD BASE
	32	PQ43687A	SCREW,X3
	33	PQM30002-192	COMPRESSION SPRING,X3
	34	SDSP2604Z	SCREW,X2
	35	PQ46595B-5	POLE BASE ASSEMBLY (SUPPLY)
	36	PQ46331C	POLE BASE ASSEMBLY (TAKE UP)
	37	PQ46332B-3	LOADING ARM ASSEMBLY (SUPPLY)
	38	PQ46337C	LOADING ARM ASSEMBLY (TAKE UP)
	39	PQ11657-1-9	GUIDE RAIL
	40	SPST2608Z	SCREW,X5
	41	SDST2612Z	SCREW
	42	LP20003-001A	CONTROL CAM
	43	PQ35138-1-2	CONTROL BRACKET
	45	LP10004-001B	CONTROL PLATE
	46	PQM30017-8	SLIT WASHER
	47	PQ21685-2-10	PINCH PLATE
	48	SPST2606Z	SCREW
	49	SPSF2608M	SCREW
	50	PQ46342D-10	LEVER ASSEMBLY
	51	PQM30017-8	SLIT WASHER
	53	PQM30017-47	SLIT WASHER,X2
	55	PQ35026-1-7	IDLER LEVER
	56	PQ11659-1-14	SLIDE PLATE
	57	LP40014-001A	CHANGE LEVER ASSEMBLY
	58	PQ21686-1-3	TAKE UP LEVER
	59	PQ46345-1-2	TAKE UP HEAD
⚠	61	PU60628-3-2	LOADING MOTOR
	62	SPSP3003Z	SCREW,X2
	63	PW30101-80AJ632	WIRE
	64	LP30005-002A	BELT
	65	PQ46395B	WORM GEAR ASSEMBLY
	66	PQ21699-1-2	WORM BEARING
⚠	68	PU61487-2-3	CAPSTAN MOTOR
	69	PQ46347D	SUB DECK ASSEMBLY
	70	SPSG2608Z	SCREW,X3
	71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
	72	SPST2606Z	SCREW,X2
	73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
	74	PQ46353A-2	CHANGE ARM ASSEMBLY
	75	PQ46354	CHANGE GEAR
	77	PQM30003-40	BELT
	78	LP40008-001A	CASSETTE GEAR
	79	PQ35030-1-5	LID GUIDE
	80	LP20032-001A	LED PRISM
	81	PEHE0237	FULL ERASE HEAD
	82	SDST2610Z	SCREW
	83	PU61432-1-1	ROTARY ENCODER
	86	PQ43546-1-2	MOTOR PULLEY
	91	SDSP2604Z	SCREW
	95	PQ46767-1-2	GUIDE CAP
	99	PQ21680L-23	MAIN DECK ASSEMBLY

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AUDIO/CONTROL HEAD BOARD ASSY <12>

REF No.	PART No.	PART NAME, DESCRIPTION
PW1	PB10916A-04	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

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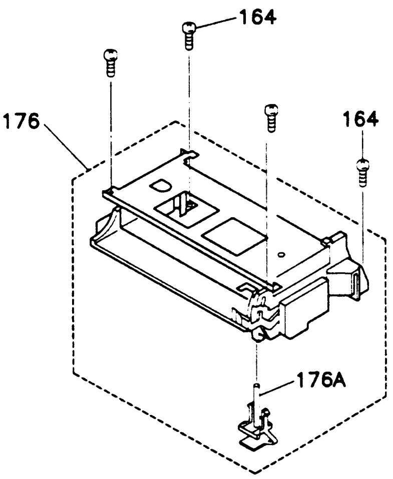
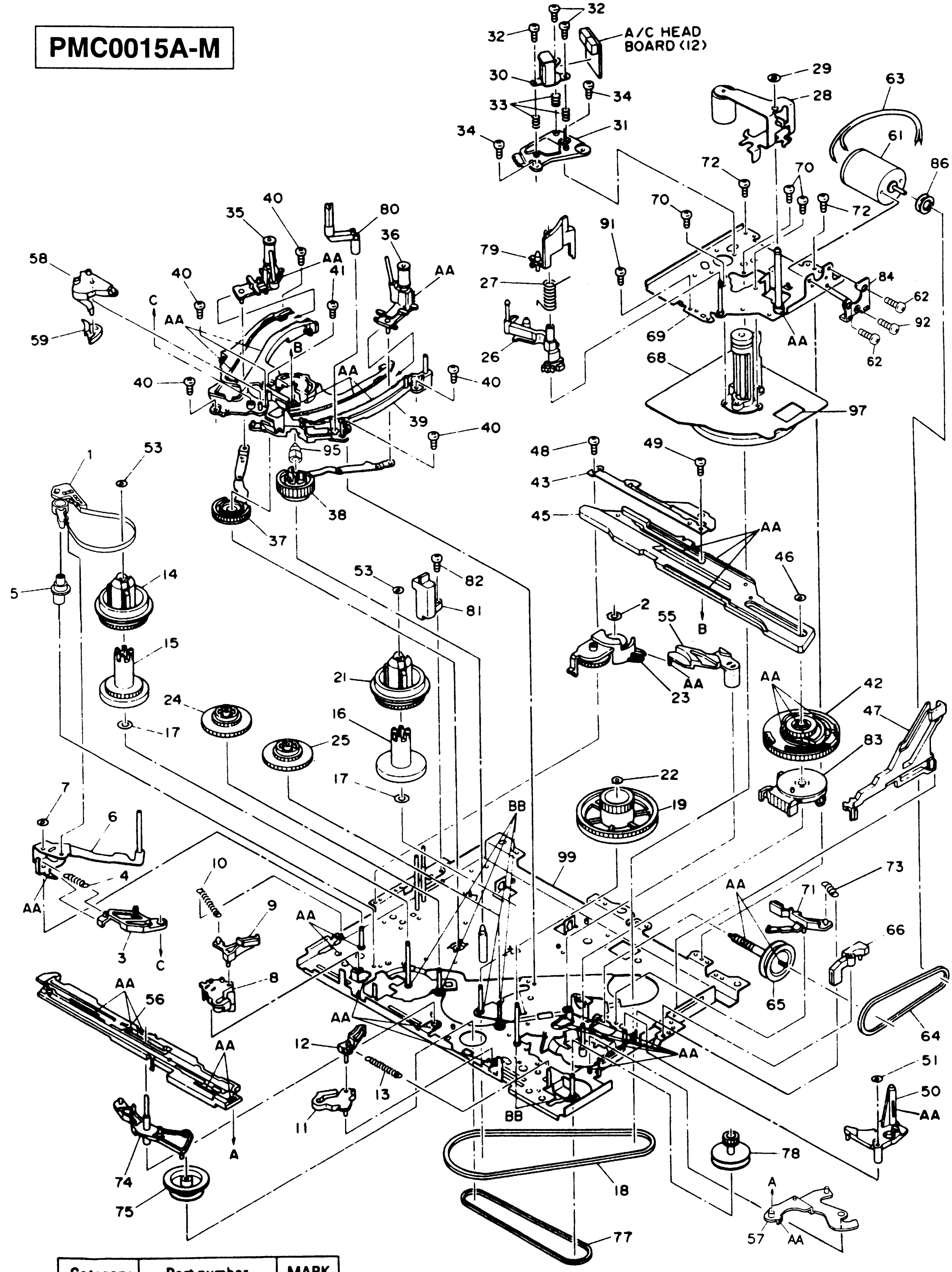
- CASSETTE HOUSING -

REF No.	PART No.	PART NAME, DESCRIPTION
164	SPST2606Z	SCREW, ×2 CASSETTE HOUSING
176	PU29724F	CASSETTE HOUSING ASSY
176A	PQ46359	CASSETTE SWITCH PIN



2.1 MECHANISM ASSEMBLY <M4>

PMC0015A-M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Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

PMC0015A-M

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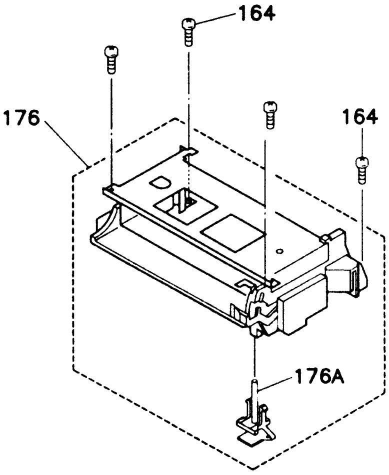
MECHANISM ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LP40006-001B	TENSION BAND ASSEMBLY
	2	PQM30017-34	SLIT WASHER
	3	PQ35012-1-5	TENSION ARM LEVER
	4	PQM30001-385109	TENSION SPRING
	5	LP30103-001A	ADJUST PIN
	6	PQ46303A-8	TENSION ARM ASSEMBLY
	7	PQM30017-47	SLIT WASHER
	8	PQ46305B-3	MAIN BRAKE ASSEMBLY (SUPPLY)
	9	PQ46306A-6	SUB BRAKE ASSEMBLY (SUPPLY)
	10	PQM30001-393	TENSION SPRING
	11	PQ46308A-5	MAIN BRAKE ASSEMBLY (TAKE UP)
	12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
	13	PQM30001-389102	TENSION SPRING
	14	PQ46561B	REEL DISK ASSEMBLY (SUPPLY)
	15	PQ35436	SLIT DISK (SUPPLY)
	16	PQ35437	SLIT DISK (TAKE UP)
	17	PQM30018-79	SPACER,X2
	18	PQM30003-38	BELT (CAPSTAN)
	19	PQ46497B-2	PULLEY
	21	PQ46562B	REEL ASSEMBLY (TAKE UP)
	22	PQM30018-69	SPACER
	23	PQ46312C-15	IDLER ARM ASSEMBLY
	24	PQ46316C-6	CLUTCH UNIT (SUPPLY)
	25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
	26	PQ46325C-9	GUIDE ARM ASSEMBLY
	27	PQ46326-2	TORSION SPRING
	28	PQ46327A-4	PINCH ROLLER ARM ASSEMBLY
	29	PQM30017-24	SLIT WASHER,P LEVER
	30	PEHE0182	AUDIO CONTROL HEAD
	31	PQ35206-1-3	HEAD BASE
	32	PQ43687A	SCREW,X3
	33	PQM30002-192	COMPRESSION SPRING,X3
	34	SDSP2604Z	SCREW,X2
	35	PQ46330C-10	POLE BASE ASSEMBLY (SUPPLY)
	36	PQ46331D	POLE BASE ASSEMBLY (TAKE UP)
	37	PQ46332B-3	LOADING ARM ASSEMBLY (SUPPLY)
	38	PQ46337C	LOADING ARM ASSEMBLY (TAKE UP)
	39	PQ11657-1-9	GUIDE RAIL
	40	SPST2608Z	SCREW,X5
	41	SDST2612Z	SCREW
	42	LP20003-001A	CONTROL CAM
	43	PQ35138-1-2	CONTROL BRACKET
	45	LP10004-001B	CONTROL PLATE
	46	PQM30017-8	SLIT WASHER
	47	PQ21685-2-10	PINCH PLATE
	48	SPST2606Z	SCREW
	49	SPSF2608M	SCREW
	50	PQ46342D-10	LEVER ASSEMBLY
	51	PQM30017-8	SLIT WASHER
	53	PQM30017-47	SLIT WASHER,X2
	55	PQ35026-1-7	IDLER LEVER
	56	PQ11659-1-14	SLIDE PLATE
	57	LP40014-001A	CHANGE LEVER ASSEMBLY
	58	PQ21686-1-3	TAKE UP LEVER
	59	PQ46345-1-2	TAKE UP HEAD
⚠	61	PU60628-3-2	LOADING MOTOR
	62	SPSP3005Z	SCREW,X2
	63	PW30101-80AJ632	WIRE
	64	LP30005-002A	BELT
	65	PQ46395B	WORM GEAR ASSEMBLY
	66	PQ21699-1-2	WORM BEARING
⚠	68	PU61487-2-3	CAPSTAN MOTOR
	69	PQ46347G	SUB DECK ASSEMBLY
	70	SPSG2608Z	SCREW,X3
	71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
	72	SPST2606Z	SCREW,X2
	73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
	74	PQ46353A-2	CHANGE ARM ASSEMBLY
	75	PQ46354	CHANGE GEAR
	77	PQM30003-40	BELT
	78	LP40008-001A	CASSETTE GEAR
	79	PQ35030-1-5	LID GUIDE
	80	LP20032-001A	LED PRISM
	81	PEHE0237	FULL ERASE HEAD
	82	SDST2610Z	SCREW
	83	PU61432-1-1	ROTARY ENCODER
	84	PQ46568-1-2	MOTOR GUIDE
	86	PQ43546-1-2	MOTOR PULLEY
	91	SDSP2604Z	SCREW
	92	SDSP2604Z	SCREW
	95	PQ46767-1-2	GUIDE CAP
	97	LP30002-013A	SPACER
	99	PQ21680N-23	MAIN DECK ASSEMBLY



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AUDIO/CONTROL HEAD BOARD ASSY <12>

REF No.	PART No.	PART NAME, DESCRIPTION
PW1	PB10916A-04	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

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- CASSETTE HOUSING -

REF No.	PART No.	PART NAME, DESCRIPTION
164	SPST2606Z	SCREW, ×2 CASSETTE HOUSING
176	PU29724F	CASSETTE HOUSING ASSY
176A	PQ46359	CASSETTE SWITCH PIN